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National Policy Studies

Editor
SUBHASH C. KASHYAP

LOK SABHA SECRETARIAT
NEW DELHI

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FOREWORD

Four decades have gone by after India achieved her independence from foreign domination and free India's Constitution gave to our country the parliamentary form of Government with elections based on universal adult franchise and justice—social, economic and political—secured to all its citizens.

The attainment of India's Independence was preceded by long years of struggle. Leaders of the national movement, some of whom took over the reins of Government after Independence, knew fully well that while the realisation of the cherished goal of political democracy was a landmark in our national resurgence and development, much more had to be done for establishing economic democracy and fulfilling the hopes, urges and aspirations of the people. Adoption of a democratic Constitution, laying stress on the principles of liberty, equality, fraternity and national unity, was to be the beginning of a long journey.

The Government under the new Constitution was enjoined to take the country to an era of progress, peace and prosperity and uphold not only the dignity of the nation as a whole but also of all its people individually. To achieve these objectives, a number of policies and programmes, covering the entire gamut of economic, social and cultural spheres, were initiated and implemented by governments from time to time after their due approval by Parliament. No policy, howsoever best formulated, can remain static for all times to come. In order to meet the changing requirements of the nation, our national policies too have had to undergo necessary modifications from time to time.

The Parliament has been actively involved in the evolution of all these national policies over the years. In order to keep the members of Parliament fully acquainted, handy brochures on different national policies and their implementation have been published by the Lok Sabha Secretariat during the last few years.

I am glad that an updated and consolidated volume of all these policy studies covering the period of the last four decades is now being brought out. I am sure that this compilation, which has been so skilfully edited, would be welcomed by all those interested in the area of policy studies.

New Delhi
February, 1990

RABI RAY
Speaker, Lok Sabha

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PREFACE

This volume seeks to present factual and objective studies on the evolution and implementation of major national policies. The studies are based on authentic and reliable data and materials. So far as possible, the sources have been appropriately mentioned in the footnotes.

The various policy studies included in the volume have been arranged alphabetically. For the sake of convenience, footnotes and appendices pertaining to each chapter dealing with the particular subject have been given with that chapter.

In a democratic setup like ours, national policies evolve over a considerable period of time. The policies aim at ensuring the overall welfare of the people which remains the common concern of any government. The basic aims of the national policies, therefore, remain largely unchanged irrespective of the changes in the complexion of the Government from time to time. However, to make these policiès more effective, suitable modifications may be made according to the changing requirements of the nation.

The general election of November 1989 has led to a change in Government at the national level. If the election manifesto of the ruling party and the early pronouncements of the new Government are taken into account, some changes may be expected *inter alia* in relation to the policies pertaining to agriculture, education, forest and environment, information, and labour and employment.

It is agreed on all hands that India being primarily an agricultural country, where about 70 per cent of the people depend on agriculture for their livelihood, any real improvement in the standard of living would necessitate a resurgence of agriculture and the farmer. It is in keeping with this assessment that the new Government has promised to devote at least 50 per cent of all investible assets to agriculture and rural development. It is natural, therefore, to assume that the agricultural policy as well as the science and technology policy, which in many ways will determine the growth prospects of agriculture, may be reviewed and modified to the extent found necessary. As the Minister of State for Science and Technology, Prof. M. G. K. Menon has put it, "a new thrust will be given to improve the coordination and integration of various science and technology projects to effectively implement them to benefit the maximum number of people".

Another area which is receiving the attention of the new Government and where basic policy changes are in the offing is the information policy. A bill has already been introduced in Parliament to grant autonomy to All India Radio and Doordarshan. The exact shape of the proposed corporation would depend upon what is finally approved by Parliament.

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The proposed inclusion of the right to work among the Fundamental Rights is another major change envisaged in the labour policy. Similarly, changes may take place in the industrial policy to ensure faster and equitable growth as well as increased employment generation. In his very first address to the nation, Prime Minister Shri Vishwanath Pratap Singh has promised that "in order to ensure that workers have an increased say in the running of industries, we will introduce a programme of making workers partners in management".

This volume attempts to present an analytical study of the national policies in various areas as they have evolved during the last 42 years. It is earnestly hoped that it would be found useful by members of Parliament, researchers, scholars and others interested in the important area of policy studies.

SUBHASH C. KASHYAP
Secretary-General
Lok Sabha

New Delhi
February, 1990

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ABOUT THE EDITOR

Dr. Subhash C. Kashyap (b. May 10, 1929) is a well-known political scientist and constitutional and parliamentary expert. A distinguished scholar and author of many books, he began his career at Allahabad as a journalist, advocate and university teacher. He joined the Parliament Secretariat in 1953 and worked in various capacities. Later, he was head of the International Centre for Parliamentary Documentation, IPU, Geneva. He is Secretary-General of the Lok Sabha since January 1984. With higher education and professional training in India, U.S.A., U.K. and Switzerland, Dr. Kashyap has had an outstanding academic career. He received many distinctions and honours within and outside India. He was U.S. Congressional Fellow of the APSA 1965 (Washington D.C.), Fellow of the Academy of American and International Law, S.M.U. (Dallas, 1966) and U.N.D.P. Fellow (1977–78). He was for some years Honorary Member, Faculty of Law, Marathwada University, Aurangabad; Member, Editorial/Advisory Boards (i) *ABC POL SCI*, Santa Barbara, California, (ii) *International Journal of Politics*, New York, and (iii) *Sage Publications Series on Comparative Legislative Studies*, London and Durham. He was awarded the title of Commander and the degree of H.O.A.S.F. (Honorary Order of the Academy of San Francisco), São Paulo, Brazil (1969) for services to constitutional and parliamentary studies; Pandit Motilal Nehru Awards for the best books in the field of Law and Political Science (1972 and 1973); special awards for the books *The Conscience of the Constitution* (1971), *Dictionary of Political Science* (1971), *History of the Freedom Struggle* (1987), etc. Widely travelled all over the world, Dr. Kashyap did pioneering work in the field of study and training in parliamentary institutions and procedures and orientation programmes for new legislators in India. He has been responsible for conceiving, designing and organising a number of institutions including (i) The Institute of Constitutional and Parliamentary Studies; (ii) Parliamentary Museum and Archives; (iii) Parliamentary Library, Research, Reference, Documentation and Information Services; and (iv) Parliament's Bureau of Parliamentary Studies and Training. In each of these, Dr. Kashyap was the first Director. As Secretary-General of the Indian Parliamentary Group, he organised the Eighth Commonwealth Speakers Conference in New Delhi in 1986. In 1984 he was the Returning Officer for the Vice-Presidential election and in 1987 for the election of the President of India.

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1

NATIONAL AGRICULTURAL POLICY

INTRODUCTION

In a large country like India, agriculture is the largest sector of economic activity. It provides not only food and raw materials but also employment to a very large proportion of the population. According to 1981 census, 76.7 per cent[a] of the population reside in rural areas and 60.5 per cent[b] of the work force depend on agriculture. For the same reason, it has to provide the capital required for its own development and make available surpluses for national economic development. In the early stages of economic development the exports of primary produce earn valuable foreign exchange which can be used to import capital goods for development of industry and infrastructure. The economic history of the developed economies amply demonstrates that improvement in agriculture preceded and paved the way for rapid strides in industry, transport and other non-agricultural activities.[1]

While the development of agriculture seems to hold the key to the progress of the economy as a whole, the linkage between agricultural non-agricultural sectors also needs to be recognised. The interaction between agricultural and non-agricultural sectors facilitates the growth of both. The demand for non-farm inputs of industrial origin stimulates industrial activities. Industrial growth in turn increases the demand for wage goods and raw materials which helps to extend agricultural employment and income. Increased agricultural income creates market demand for industrialisation and market development. As commerce develops, the tertiary sector also expands. As development proceeds along these lines, opportunities for diversified employment are opened up to reduce the pressure of population that would have otherwise crowded the agricultural sector to draw its sustenance therefrom. In essence, therefore, agriculture has a crucial role to play in the country's economic development.[2]

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[a] Includes projected population of Assam.

[b] Excludes Assam.

[1] Government of India: *Report of the National Commission on Agriculture, 1976, Part II, Policy and Strategy*, New Delhi, 1976, p. 1 and Government of India, Ministry of Planning: *Statistical Pocket Book—India 1983*, New Delhi, 1984, p. 5.

[2] *Ibid.*

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HISTORICAL REVIEW OF AGRICULTURAL POLICY AND CONSTITUTIONAL PROVISIONS RE: AGRICULTURE

Royal Commission on Agriculture

The Royal Commission on Agriculture (RCA) was appointed in 1926 under the Chairmanship of the Marquess of Linlithgow. It was directed "to examine and report on the present conditions of agricultural and rural economy in British India, and to make recommendations for the improvement of agriculture and to promote the welfare and prosperity of the rural population". The RCA made detailed recommendations in various fields like agricultural research, crop production, animal husbandry, forestry, fisheries, cooperation, village development, agricultural finance etc. Before much progress could be achieved in implementing the recommendations of the Royal Commission on Agriculture, an economic depression of unprecedented magnitude set in. Owing to the restrictive budgetary policy of the Government to combat the effects of the depression, most of the recommendations of the RCA which were of developmental nature were not acted upon. A significant and immediate outcome was the establishment of the Imperial (now Indian) Council of Agricultural Research in 1929.[3]

World War II

The World War II that broke out in 1939 was a turning point in many ways. It dislocated normal flow of goods, particularly primary products to foreign markets, adversely affecting the conditions of farmers and agricultural sector. In 1942, the Japanese occupation of Burma and the consequent loss of imports of Burma rice completely upset the food strategy of the Government of India. Under these compelling circumstances the Government had to make determined efforts to increase food production and to evolve a viable food policy to meet the prevalent scarcity conditions. During this period, various steps were taken to develop a comprehensive and integrated policy for development of agriculture and a Basic Food Plan for the distribution of foodgrains in the country under a situation of scarcity.

After Independence

Partition of the country in 1947 brought about far reaching imbalances in the agricultural sector. However, with Independence, efforts were made for the first time to develop a national policy to improve agriculture not only to meet the current shortage but also to get over the imbalances caused by partition and to make this sector the kingpin for growth and development of the national economy and increasing the living standards of the people.[4] The immediate task

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[3] National Agriculture Commission Report, Part I, *op. cit.*, *pp.* 124–125.
[4] *Ibid.*, p. 125.

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facing the National Government was to increase the domestic production of all agricultural commodities. The 'Grow More Food Campaign' (GMF) was therefore, placed on a planned basis from 1947–48. However, the GMF Campaign did not respond adequately in terms of crop production.

With the establishment of the Planning Commission in 1950 and the implementation of the five year plans, agricultural development (including animal husbandry, forestry and fisheries) became the major objective of a consistent plan of action embracing all sectors of the national economy supported by requisite policy measures and institutional framework. Alongside developmental measures in crop production, agrarian reforms were pushed through in various States. The notable among them during the pre-plan period was the Uttar Pradesh Zamindari Abolition and Land Reforms Act of January, 1951. By the end of 1953, all States had abolished the Zamindari System.[5] A number of States also enacted legislation to fix the shares of the produce between the landlord and the tenant, to prevent unfair eviction of tenants and to confer ownership rights on them on specified conditions.

Measures were also taken by the Government to streamline collection of agricultural statistics and to improve their coverage and quality. The Directorate of Economics and Statistics was set up in January, 1948 in the Ministry of Agriculture, under the Economic and Statistical Adviser.

Constitutional Provisions Regarding Agriculture and Related Matters

The Constitution of India lays down the distribution of legislative power between the Centre and the States in regard to agricultural development. The relevant entries are given in the Seventh Schedule indicating the distribution of these powers. In accordance with entry fourteen of the State List in the Seventh Schedule "Agriculture, including agricultural education and research protection against pests and prevention of plant diseases" is a State subject. Similarly, preservation, protection and improvement of stock and prevention of animal diseases; veterinary training and practice (entry 15); land and land tenure system and related matters (entry 18); and fisheries (entry 21) are State subjects. Supply of water and related matters are also State subjects (entry 17). Powers for the regulation and development of inter-State rivers and river-valleys are included in the Union List (entry 56). Under entry eighteen of the State List relating to land and land tenure system, the State can enact legislation providing for ceiling on land holding or to limit the use of land for a particular purpose.[6]

There are very few entries in the Union List that are directly related to Agriculture. Entries in the Union List relating to inter-State trade and commerce (entry 42), formation of the trading corporations (excluding cooperatives) (entry 43), and corporations with objects not confined to one State (except

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[5] *Ibid.*, p. 144.
[6] National Agriculture Commission Report, Part II, *op. cit.*, p. 94.

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universities) (entry 44) cover a wide-area of Central activities including formation of a number of statutory and autonomous bodies in the field of agricultural development. A similar provision in the State List (entry 32) is subject to the provision in the Union List.[7] At the same time, the Central powers relating to formation of trading corporations and inter-state corporations are not to be exercised in a manner that would affect the legislative powers of the states such as in regard to cooperatives. Otherwise the device of constituting corporate body could be used to encroach upon many State fields. Similarly, entries in the Union List concerned with scientific or technical education and research (entries 64 and 65) and coordination and determination of standards in institutions for higher education or research and scientific and technical institutions (entry 66) provide adequate scope for the growth of central research and educational institutions despite the fact that agricultural and animal husbandry education and research are included in the State List (see entries 14 and 15). Entry 52 of the Union List relating to the control of industries in the public interest authorises the Centre to control the production and marketing of certain agricultural commodities. The Acts governing Tea, Coffee, Rubber, Cardamom and Coir, Tobacco, Coconut and National Oilseeds and Vegetable Oils Development Boards contain a declaration that it was expedient in the public interest that the Union should take these "industries" under its control through statutory Boards. Under entry 56 of the Union List, the Centre can deal with development of inter-State rivers and river-valleys, only if it is declared by Parliament by law to be expedient in the public interest. A related provision is Article 262 of the Constitution under which the Centre is competent to deal with adjudication of disputes relating to waters under the Inter-State Water Disputes Act, 1956. The River boards as advisory bodies for important river-basins, was enacted under entry 56 of the Union List.[8]

To mention some other provisions in the Union List, inter-State quarantine (entry 81) and fishing and fisheries beyond territorial waters (entry 57) are within the Central purview. Banking and insurance cover operations in the agricultural sector also (see entry 43). The Centre can also impose controls on agricultural commodities in order to establish "standards of quality for goods to be exported out of India or transported from one State to another" (entry 51).

But it is primarily from the Concurrent List that the Centre derives its powers to intervene in the field of agricultural development. In the case of items in this list, Union Law would prevail against the State Law (Article 251) "Economics and social planning" appearing in the Concurrent List (entry 20) provides the legal basis for national planning in which both the Centre and the States play their respective roles in accordance with the emerging needs of development. "A national plan has necessarily to comprehend the entire range of developmental activities, cutting across the delimitation of powers between the Centre and the States. In this process, the Government of India and the

[7] *Ibid.*
[8] *Ibid.*

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Planning Commission have acquired a voice even in matters recognised to be within the jurisdiction of the States." Under Article 282, Central discretionary grants constitute a substantial portion of the resources for financing outlays on agriculture in the State Plans. Under entry 33 of the Concurrent List as substituted by the Constitution, the Centre can legislate regarding trade and commerce and "the production, supply and distribution" of food stuffs including edible oilseeds and oils, cattle fodder including oil cakes and other concentrates; raw cotton, whether ginned or unginned, and cotton seed, and raw jute. Similar entries in the State List (26 and 27) are subject to the provisions of entry 33 of the Concurrent List. The Essential Supplies Act, 1946 was replaced by the Essential Commodities Act, 1955 after the third Constitution Amendment Act of 1954. It covers Central regulation of activities relating to production, supply and distribution, and of prices in respect of essential commodities mentioned above. Section 3 (2) (b) of the Act provides for "bringing under cultivation any waste or arable land for the growing thereon of food crops generally or of specified food crops." However, taking into account a total view of the different provision of the Constitution, the study team of the Administrative Reforms Commission on Central-State Regulations while examining the scope of the word "production" occurring in entry 33 stated: "It appears to us that agriculture should administratively be treated as a State subject and that Central encroachment in the shape of the assumption of responsibility for substantive activity should not be permissible."[9] At the same time, entry 33, as it is, provides a wide scope for a number of permutations and combinations in Centre-State relations in the field of agricultural development. The Study Team of the Administrative Reforms Commission was of the view that the use of the term "production" under entry 33 needed to be clarified through a Parliamentary review so that the responsibility in the field was clearly defined. So far, however, there has not been any objection to Central initiative or enactments under this entry. The operation of the Essential Commodities Act has been confined essentially to regulation and control of supplies, distribution and prices of selected agricultural commodities specified under the Act. The National Cooperative Development Corporation Act, 1962 and the Warehousing Cooperation Act, 1962 were enacted under entry 33 with the object of promoting development of cooperation and warehousing facilities in regard to items covered under this entry. Under these Acts of 1962, the National Cooperative Development Corporation (NCDC) and the Central Warehousing Corporation (CWC) have undertaken important activities in fields within the State purview. However, the implementation of programmes continues to be within the jurisdiction of the States. The Essential Commodities Act, 1955 also provides conferment of powers and responsibilities on the States allowing them to issue orders under the Act. The States are to play the key role in the actual administration of the Act.

"Price Control" is also one of the items in the Concurrent List (entry 34).

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[9] *Ibid.*

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Under it, the Centre is empowered to fix maximum and minimum prices. These powers, as already mentioned, are enjoyed by the Centre under the Essential Commodities Act, 1955 also. Legislative control of bankruptcy and insolvency is covered by the Concurrent List (see entry 9) but "Money lending and money lenders; relief of agricultural indebtedness" is a State subject (entry 30). Accordingly, there is considerable scope for Central as well as State initiatives in the organisation of credit facilities and assistance to State level cooperative institutions through the Central institutions. Mention could also be made of some other entries in the Government List like "Prevention of the extension from one State to another of infectious or contagious diseases or pests affecting men, animals or plants" (entry 29), "Prevention of cruelty to animals" (entry 17), Forests (entry 17 A) and "Adultration of food goods" (entry 18).[10]

Certain general provisions of the Constitution are also relevant in this context. The residual power regarding any item that is not included in the three lists goes to the Centre (Article 248). A State can further entrust to the Centre, functions in relation to any matter to which the executive power of the State extends (Article 258 A). Parliament is also competent to legislate in respect of a matter in the State List if the Rajya Sabha declares such legislation to be in the national interest with the support of two-thirds of the members present and voting (Article 249). Article 252 empowers Parliament to legislative power, at the request of two or more States. Such a law would, however, become operative only after its adoption by the legislatures of the States making the request. Parliament can also impose such restrictions in inter-State trade, commerce or intercourse between one state and another or within any part of the territory of India as may be required in the public interest (Article 302). According to Articles 256 and 257, compliance of the exercise of State executive powers with the Union Laws and the exercise of the power of the Union is ensured. The Union is authorised to issue directions towards this end.[11]

Finally Part IV of the Constitution setting forth the Directive Principles envisages:

> The State shall endeavour to organise agriculture and animal husbandry on modern and scientific lines and shall, in particular, take steps for preserving and improving the breeds, and prohibiting the slaughter of cows and calves and other milch and drought cattle. (Article 48)

AGRICULTURAL DEVELOPMENT FROM FIRST PLAN TO FIFTH PLAN (1950–51 to 1979–80)

In order to achieve various socio-economic objectives like elimination of poverty, unequal distribution of income and output, disparities between rural and urban

[10] *Ibid.*, p. 96.
[11] *Ibid.*, pp. 96–97.

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areas, large allocations are directed towards agriculture in a country like ours where agriculture employs 60.5 per cent people (according to 1981 census). The story of emphasis on agriculture goes back to the era of introducing planning in India in 1951.

Objectives and Strategies

The major objectives of the First Plan in the field of agriculture were to correct the imbalances caused by partition of the country in the supply of foodgrains and commercial crops, particularly cotton and jute, and improve infrastructure facilities. Agriculture, including irrigation and power, was, therefore, accorded the highest priority. Efforts to improve agriculture were spread over the entire country and every village was to be involved in it through the Community Development Programme. A land policy was also adumbrated, aimed at eliminating exploitation and extending security of tenure.[12]

In the Second Plan, agriculture was accorded a somewhat lower priority *vis-a-vis* industry. The shift in priorities was due to:

(a) The smooth performance of agriculture during the First Plan period;
(b) possibility of financing economic development through foreign aid in farm surpluses; and
(c) heavy industry being considered as the leading sector of economic development. However, towards the close of the Second Plan, a new approach to agricultural development based on selectivity of area and concentration of efforts gained acceptance.[13]

Accordingly, under the Third Plan, Intensive Agricultural District Programme (IADP) and the Intensive Agricultural Areas Programme (IAAP) were launched. The main objectives of the Third Plan were to achieve self-sufficiency in foodgrains and increase in agricultural production to meet the requirements of industry and export. A number of new institutions were set up to extend support to development activities in different fields; these included the Food Corporation of India, and the Agricultural Refinance and Development Corporation. However, the implementation of the Third Plan was hindered by three unexpected events; the Chinese incursion on the borders in 1962, the Pakistani incursion in Jammu & Kashmir in 1965; and the disastrous drought in 1965 and 1966.[14] In 1966–67, a new strategy of agricultural development was launched. Its main planks were the High Yielding Varieties Programme (HYVP) and the Multiple Cropping Programme, both based mainly on the exotic, high yielding, short duration crop varieties. The other elements of the strategy were the new concepts of irrigation and water management, adoptive research and price guarantee to producers.

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[12] National Agriculture Commission Report, Part II, *op. cit.*, p. 147.
[13] *Ibid.*
[14] *Ibid.*, p. 149.

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While most of the programmes adopted under the new strategy were continued in the Fourth Plan, a new orientation was imparted to agricultural policy. To achieve growth with social justice, a built-in-bias was introduced in agricultural programmes to help the weaker and vulnerable sections and backward areas. The role of technology as a major input in agriculture was accorded explicit recognition. Besides attainment of self-sufficiency, the Plan envisaged building up of a sizeable buffer stock of foodgrains and stoppage of concessional imports of foodgrains.

Agriculture received renewed emphasis in the Fifth Plan. The growth rate in the agricultural and allied sectors was estimated at 4.2 per cent. Important programmes like minor irrigation, high yielding varieties of seed and distribution of fertilisers received necessary allocation. The outlays for reclamation of alkaline, saline and acidic soils and plant protection programmes were enhanced. Emphasis was also placed on developing organic source of manure and higher outlays provided for setting up biogas plants. Adequate provision was made for acceleration of the minikit seed programme and also on strengthening of the extension service.[15]

Agriculture Outlays

The plan-wise outlay allocated to the agriculture sector is shown in Table 1.1.

Table 1.1
*Plan Provision and Actual Outlay for Agriculture Sector, Agriculture and Allied Programmes**

(Rs. in crores)

Plan	*Plan Provision (A)*	*Actual (B)*	*Percentage B to A*
First Plan (1951–56)	238	211	88.6
Second Plan (1956–61)	275	216	78.5
Third Plan (1961–66)	591	528	87.6
Annual Plan (1966–69)	664	547	82.3
Fourth Plan (1969–74)	2059	1649	80.0
Fifth Plan (1974–79)	3356	3217	95.9
Sixth Plan (1980–85)	6440	7323	112.7
Seventh Plan (1985–90)	10573.6		

* Includes programmes, viz., Research & Education, Crop Husbandry, Dairy Development, Fisheries, Forestry, Investment in Agricultural Finance Institution, Agricultural Marketing and rural godowns, Storage Warehousing and Food Processing, Disaster Management, Cooperative & Plantation.

[15] Government of India, Planning Commission: *Fifth Five-Year Plan (1974–79)*, New Delhi, 1976, pp. 24–25.

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Steady Increase in Production

Since the beginning of the planned era, after Independence, India has made remarkable progress in the field of agriculture.[16] Compared to a growth rate of 0.3 per cent per annum during the period 1900 to 1950, the agricultural production grew at an annual compound rate of 2.61 per cent during 1949–50 to 1983–84.[17] The production of foodgrains, under the major crops of the country, cultivated in about three-fourths of the total cropped area, has risen by three times from the level of 50.8 million tonnes in 1950–51 to 152.4 million tonnes in 1983–84. The production of commercial crops like sugarcane, cotton and jute and mesta has also risen more or less by three times during the period from 1950–51 to 1983–84.[(a)]

Agricultural Inputs

(a) Irrigation

The five year plans have always stressed the importance of expanding irrigation facilities in order to ensure the supply of the vital input, water, at the correct time and in sufficient volume, to bring about agricultural development. The total outlays for irrigation programmes and flood control provided under the various plans are given in Table 1.2.

Table 1.2
Financial Outlays/Expenditure on Irrigation[18]

(Rs. in crores)

Plans	*Major and Medium*	*Minor irrigation*	*Flood Control*	*Total*
First	380	66	13	459
Second	380	142	48	570
Third	581	328	82	991
Annual Plans (1966–69)	434	326	42	802
Fourth	1237	513	162	1912
Fifth	2442	631	299	3372
Annual Plans (1978–80)	2056	497	330	2883
Sixth	7550	1989	764	10303

[16] For Targets and Achievements of production of foodgrains during various plans, please *see* Appendix I(i).

[17] Rao Birendra Singh, "Agriculture in India", *The Report of the Seminar on Agricultural Development and the Small Farmer*, New Delhi, 1984, pp. 265–6.

[(a)] For agricultural production, please *see* Appendix I(ii).

[18] Statistical Pocket-Book, India-1983, *op. cit.*, p. 42 and information received from the Ministry of Water Resources in March 1989.

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The execution of the various major, medium and minor irrigation works has led to a very significant increase in the area irrigated. In 1950–51, the gross area irrigated stood at 22.6 million hectares. From this level it had come up to 60.58 million hectares in 1984–85. There had been a remarkable increase in the area irrigated by wells, particularly tubewells. The net area irrigated by wells and tubewells rose from nearly 6 million hectares in 1950–51 to about 20 million hectares in 1984–85. Canals irrigated 8.3 million hectares in 1950–51 and this area had increased to about 15.9 million hectares (net) in 1984–85. The net area under tank irrigation remained almost constant, covering around 3.5 million hectares.[19]

(b) Fertilisers

Chemical fertiliser was recognised as an important farm input and attention was directed towards its production and promotion. The Sindri Fertiliser Factory was completed in October, 1951 and three more factories came up in the Second Plan at Neyveli, Nangal and Rourkela. The Third Plan proposed a bigger programme for promoting use of chemical fertilisers. Specific targets were laid for nitrogenous, phosphatic and potassic fertilisers and a number of steps were taken to promote their use, which included reduction in the sale price of urea, subsidy on road transport from railhead to inaccessible areas, arrangements for intermediate bulk storage, grant of off-season rebates on the sale of urea, calcium, ammonium nitrate and ammonium sulphate and intensification of programmes for fertilisers demonstration on cultivators fields. With the launching of the High Yielding Varieties Programme (HYVP) the fertiliser off take was expected to increase steadily, but instead some deceleration was observed in 1968–69. The Fourth Plan, therefore, stressed on measures for stimulating demand for fertilisers, and arranging speedy supply. These included improvement and extension of soil testing facilities, increased use of soil amendments, intensification of extension and sales promotion increase in number of retail points and increased availability of distribution of credit, etc.[20]

During the Fifth Plan, substantial expansion of facilities for soil testing was envisaged for the balanced use of fertiliser. Attention was given to strengthen the distribution arrangements for chemical fertilisers. A substantial programme for the development of local manurial resources was envisaged in the Fifth Plan. High priority was given to production of fertilisers in the country. Consistent efforts to increase the consumption of fertiliser through trials, demonstrations and propaganda were made during the plan period.

Stress was laid during the Sixth Plan on Fertiliser Promotion to stimulate fertiliser consumption in potential districts to augment the food production. An Intensive Fertiliser Promotion Campaign was launched with the assistance of Fertiliser Industry in selected 104 low consuming but potential districts. This

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[19] C. Arputharaj: *Indian Agricultural Economy*, Macmillan India Ltd., Madras, 1982, p. 58.
[20] National Agriculture Commission Report, Part I, *op. cit.*, p. 157.

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gave a fillip in the consumption scenario. The year 1983–84 which witnessed the highest food production of 152.4 million tonnes, also showed the highest increase of 1.3 million tonnes in fertiliser consumption over the previous year. Emphasis was also laid on integrated nutrient's management with judicious use of chemical fertilisers, organic manures and bio-fertilisers.

The efforts continued during Seventh Plan with more stress on integrated nutrients management and promotion of fertiliser use in rainfed areas which though constitute 70 per cent of total cultivated area, consume only 20 per cent of fertilizers.

A National Project on Development of Fertiliser use in low consumption rainfed areas is proposed to be implemented in 60 identified districts, where stress is mainly on transfer of technology through block demonstrations, training of farmers and dealers on efficient use of fertilisers and crop management and advance stocking of fertilisers in interior and inaccessible areas through opening of additional retail outlets. It is also proposed to open 100 additional retail outlets in each of these selected 386 districts to ensure timely availability of fertilisers in the remote inaccessible areas.

To stimulate the consumption in each district, a Lead Fertiliser Supplier System has been introduced since Rabi 1986–87, under which State Government have nominated one lead fertiliser supplier in each district and the State as a whole to undertake various promotional activities based on detailed action plan prepared for each district besides assisting the State Governments in the assessment of demand and consumption.

Fertiliser Control Laboratories in selected states are being strengthened. It is also proposed to establish 3 new laboratories, one each at the ports of Kandala, Vishakapatnam and Mangalore. Regular training programmes for State Fertiliser Inspectors and Fertiliser Analysts are being conducted by Central Fertiliser Quality Control and Training Institute, Faridabad.

The production and promotion of bio-fertilisers specially Rhizobium and Blue Green Algae as a cost effective and renewable supplement of chemical fertilisers is being undertaken through the establishment of one National Centre, Six Regional Centres and 60 sub-centres. The Soil Testing Laboratories are being suitably strengthened to increase their annual analysing capacity to 6.4 million samples so as to advise farmers on judicious and balanced use of fertilisers and maintaining proper soil health.[21]

The progress of consumption of fertilisers since 1950–51 can be seen from Table 1.3.

(c) Agricultural Implements and Machinery

Improved farm implements and tools to meet the needs of scientific agriculture received adequate attention only during the Third Plan period. In the context of emphasis on intensive cultivation especially during the sixties, use of tractors

[21] Information received from the Ministry of Agriculture in March 1989.

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Table 1.3
Consumption of Fertiliser in India upto Seventh Five-Year Plan

Year	Total Nutrients ($N + P_2O_5 + K_2O$) (Thousand tonnes)	Year	Total Nutrients ($N + P_2O_5 + K_2O$)
1950–51	69	1974–75	2574.0
1955–56	130.8	1975–76	2894.0
1960–61	292.1	1976–77	3411.0
1965–66	784.6	1977–78	4286.0
1966–67	1100.6	1978–79	5117.0
1967–68	1539.0	1979–80	5256.0
1968–69	1760.7	1980–81	5516.0
1969–70	1982.4	1981–82	6064.0
1970–71	2177.0	1982–83	6388.0
1971–72	2656.9	1983–84	7710.0
1972–73	2768.0	1984–85	8211.0
1973–74	2839.0	1985–86	8738.0
		1986–87	8738.0
		1987–88 (estimated)	9072.0

for farm operations and use of oil engines and electric pumpsets for irrigation started gaining popularity. With the introduction of High Yielding Varieties and multiple cropping programmes which involve a tight scheduling of various farm operations, the demand for motive power has also increased considerably. In order to spread the benefits of mechanisation to a large number of farmers particularly those who are not able to afford costly machinery, agro-industries corporations were set up in 17 major states for distributing tractors and other agricultural machinery and to provide repairs, servicing, and custom hiring facilities to the farmers.

(d) Agricultural Price Policy

To give incentives to the primary producers, the Government had been following a policy of price support to agricultural produce since June, 1957. Agricultural Price Commission (since renamed as Commission for Agricultural Costs and Prices—CACP) was set up in 1965 to advise the Government on the price policy for all agricultural commodities including cash crops like cotton, jute, sugarcane and oil seeds, on a continuing basis. The Jha Committee's (1964) recommendations on farm support prices marked the beginning of a production-oriented agricultural price policy in the country.[22] Efforts are also made to announce support prices as early as possible, preferably before the commencement of the sowing season itself.

[22] National Agriculture Commission Report, Part I, *op. cit.*, pp. 166–167.

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AGRICULTURAL POLICY DURING SIXTH PLAN

The agricultural growth pattern during the Sixth Plan period took into account the immediate as well as the long-term needs of agricultural commodities both for domestic consumption and for export. The highest priority was accorded to bridging the gap prevailing between actual and potential farm yields even at current levels of technology through the removal of the constraints responsible for this gap. Both agriculture and fisheries received concurrent attention through the development of appropriate packages of technology, services and public policies.

Objectives of Agricultural Programme during Sixth Five-Year Plan

The aims of the agricultural programmes during the Sixth Plan period were:[23]

(a) to consolidate the gains already achieved;
(b) to accelerate the pace of implementation of land reforms and institution building for beneficiaries;
(c) to extend the benefits of new technology to more farmers, cropping system and regions and to promote greater farm management efficiency through concurrent attention to cash and non-cash inputs;
(d) to make agricultural growth not only an instrument of maintaining an effective national food security system but also a catalyst of income and employment generation in rural areas;
(e) to promote scientific land water use patterns based on considerations of ecology, economics, energy, conservation and employment generation; and
(f) to safeguard the interests of both producers and consumers by attending to the needs of production, conservation, marketing and distribution in an integrated manner.

Outlay for Agricultural Sector

The year-wise outlay for the agricultural sector during the Sixth Plan is shown in Table 1.4.[24]

Agricultural Production

While reviewing performance in the Sixth Plan, the performance during the first three years of the Seventh Plan has also been covered for the sake of unity of presentation. The year 1980–81 which marked the beginning of the Sixth Plan was a year of significant achievements. It recorded a sharp recovery in production over 1979–80, which had been marked by unprecedented drought

[23] Government of India, Planning Commission: *Sixth Five-Year Plan (1980–85)*, New Delhi, 1980, p. 97.
[24] Information received from the Ministry of Agriculture in March 1989.

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Table 1.4
Sixth Plan Outlay for Agricultural Sector

Plan	*Agriculture Sector (Rs. in crores)*
1. Sixth Plan Outlay	6439.7
2. Annual Plan (1980–81) (Actuals)	1089.3
3. Annual Plan (1981–82) (Actuals)	1257.5
4. Annual Plan (1982–83) (Actuals)	1418.3
5. Annual Plan (1983–84) (Actuals)	1594.7
6. Annual Plan (1984–85) (Actuals)	1963.2
7. Total Sixth Plan (1980–85)	7323.0

and massive decline in production. The total foodgrains production during 1980–81 was of the order of 129.6 million tonnes marking an increase of 18.1 per cent over the previous year's 109.7 million tonnes. Among foodgrains, rice recorded a substantial improvement from 42.3 million tonnes in 1979–80 to 53.6 million tonnes in 1980–81. Wheat output recorded a rise of 4.5 million tonnes to 36.3 million tonnes. The production of coarse grains increased to 29.0 million tonnes as compared to 27.0 million tonnes in 1979–80. Pulses, which are mainly rainfed, also recorded a substantial improvement from 8.6 million tonnes in 1979–80 to 10.6 million tonnes in 1980–81, though the production at this level, too, was lower than the levels reached during the years 1976–77 to 1978–79.[25]

Among commercial crops, sugarcane production made a substantial progress during 1980–81 rising to the level of 154.2 million tonnes as against 128.8 million tonnes in 1979–80. The output of jute and mesta combined rose from 79.6 lakh bales to 81.6 lakh bales, though mesta suffered a small decline. A moderate advance was also made in oilseeds production.

The crop year 1981–82 was characterised by several notable achievements. It witnessed an overall growth in agricultural production of 5.6 per cent over the previous year. The overall foodgrains production at 133.3 million tonnes was higher by 3.7 million tonnes over that of 1980–81. Wheat production touched a new record level of 37.5 million tonnes. The production of sugarcane (186.4 million tonnes), oilseeds (120.3 lakh tonnes), jute and mesta (83.7 lakh bales) also touched new record levels. Cotton production at 78.8 lakh bales was enough to meet the internal requirements in full and leave a surplus fo. exports.

Agricultural production in 1982–83 suffered adversely on account of unfavourable weather conditions. The South-West monsoon set in late, behaved erratically and then withdrew early. Failure of late September/early October rains in 1982 compounded the problems faced by the Kharif crops over vast

[25] Government of India, Planning Commission: *Annual Plan (1984–85)*, New Delhi, 1985, p. 48.

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areas. Floods, especially in parts of Orissa, Bihar, Eastern U.P. and cyclonic storms in Saurashtra in early November also caused widespread damage to the standing crops. Kharif foodgrains production declined from 79.4 million tonnes in 1981–82 to 69.9 million tonnes in 1982–83. Production of Kharif rice declined by 6.1 million tonnes, of coarse grains by 3.3 million tonnes and of Kharif pulses by 0.2 million tonnes. The shortfall in Kharif foodgrains production would have been larger but for the prompt steps taken to compensate for the adverse impact of the monsoons through an intensive production drive focussing on optimum utilisation of minor irrigation potential by providing diesel oil and electric power for the agriculture sector on a priority basis and special efforts to ensure timely supply of seeds for resowing, fertilisers, pesticides, etc., with the necessary credit back-up.

Intensive efforts were mounted to compensate for the Kharif losses. All the agencies at the village level and upwards were mobilised and timely supplies of inputs including seeds, fertilisers, weedicides and pesticides, technology and credit at farm level were given. Greater utilisation of irrigation facilities was achieved through the release of maximum feasible water into the canals and adequate supplies of diesel oil and electricity for pumpsets and tubewells. Special efforts were also made to improve distribution of inputs. All these efforts led to an increased rabi production. This increase offset a major portion of the shortfall suffered in the preceding Kharif season. Overall foodgrains production during 1982–83 declined by 3.8 million tonnes from 133.3 million tonnes in 1981–82 to 129.5 million tonnes. This compared well with the total loss of more than 22 million tonnes of foodgrains suffered during a lesser drought year of 1979–80 from 131.9 million tonnes in 1978–79 to 109.7 million tonnes in 1979–80 and also provided for the growing technological strength and resilience of the Indian agriculture.[26]

The record foodgrain production of 152.4 million tonnes during 1983–84 was a single achievement for India, receiving world-wide acclaim. It is to be noted that while the first Green Revolution of 1967–68 arose from introduction of new high yielding varieties of Mexican wheat and dwarf rice varieties evolved by the International Rice Research Institute, the spectacular increase in production during 1983–84 was mainly owing to organised input management. The year 1983–84 could thus be termed as a turning point marking a massive increase in production through expansion in supplies of inputs and services to the farmers, extension and better management. As compared to the previous years, the increase in 1983–84 in the distribution of seed, fertiliser and pesticides showed a marked increase. The expansion in the provision of institutional credit for agriculture was also encouraging. The highly notable and encouraging feature of this second Green Revolution is that whereas the first Green Revolution of 1967–68 was confined mainly to a few progressive areas of Punjab, Haryana and Western U.P., the second Green Revolution of 1983–84, witnessed significant progress in Eastern and Central States including West Bengal,

[26] *Ibid.*

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Bihar, Orissa, Madhya Pradesh and U.P. where the growth rates had been relatively slow.[27]

The overall growth in agricultural production had a very salutary effect on the economy. Supplies of rice, wheat and other cereals had been in abundance and the prices had been ruling mostly at a lower level than the previous year. Procurement of rice and wheat touched a new peak and the stocks of foodgrains also reached a record level.

During 1984–85, the tempo of agricultural development was maintained despite lack of rains in some rainfed areas. Although the onset of southwest monsoon was generally in time, erratic in many areas and parts of West Bengal, Bihar and Orissa were affected by excessive rains during the last week of June, 1984. The situation further worsened due to power shortage and breach in Bhakra Main Line Canal, moisture stress, which delayed paddy transplantation in some states also affected groundnut crop in Saurashtra. Widespread rains in the second half of August, however, made up the deficiency in rainfall to a considerable extent.

Despite uneven, erratic and insufficient monsoon and the worst post monsoon rainfall deficiency during 1984–85, the production of foodgrains in the country was 145.5 million tonnes.

Agricultural Inputs

The agricultural inputs, i.e. (a) Fertilisers and Manures, (b) Seeds, (c) Irrigation, (d) Agricultural Implements and Machinery, (e) Plant Protection and Pesticides, and (f) Credit, are the pillars of agriculture. They are interdependent and inter-linked with one another. Their timely availability in adequate quantity near the farmer's fields is absolutely essential for agricultural production and productivity.

(a) Fertilisers and Manures

Considering that the availability of land under agriculture is unlikely to increase to any significant degree, the needs of a rapidly growing population will have to be met by increasing the productivity of the available land. It has been estimated that for every tonne of nutrient put into the soil, there is an increase of 8 to 10 tonnes of foodgrains other things remaining equal. It has been estimated also that about 70 per cent of the growth in agricultural production can be attributed to increased fertiliser use. The increases in consumption of fertilisers over a period of time would, thus, be a good indicator of the country's performance in the field of agriculture.

The position of levels of consumption *vis-a-vis* the target during the Sixth and Seventh Plans is shown in Table 1.5.[28]

During 1983–84 the offtake increased by 21 per cent to 82.1 lakh tonnes.

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[27] Government of India, Ministry of Agriculture: *Annual Report (1984–85) of Department of Agriculture and Cooperation*, New Delhi, 1985, pp. 1–2.

[28] Department of Agriculture and Cooperation, *Annual Report (1984–85)*, *op. cit.*, p. 35.

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TABLE 1.5
Sixth and Seventh Plan Consumption Levels

(Lakh tonnes)

Year	*Target*	*Consumption (N+P+K)*	*Percentage increase over the previous year*	*Percentage achievement vis-a-vis target*	*Consumption in kg per hectare*
1	2	3	4	5	6
1980–81	61.00	55.2	4.9	90.49	31.82
1981–82	66.00	60.6	9.9	91.82	34.99
1982–83	72.04	63.9	5.3	88.70	36.94
1983–84	72.00	77.1	20.7	107.22	44.66
1984–85	84.00	82.1	6.5	97.8	47.56
1985–86	95.50	84.7	3.2	91.5	50.61
1986–87	95.00	87.4	3.1	84.8	NA
1987–88 (Estimated)	103.00	89.7	2.7	88.1	NA

The three bad drought years, 1985–86 to 1987–88 acted as a break on the growth of fertiliser use. There was a record increase by 13.2 lakh tonnes in fertilisers consumption of taking the total of 77.1 tonnes in 1983–84, marking a break from the past trend. The increase is attributable chiefly to a combination of two factors-favourable rainfall situation and reduction of 7.5 per cent in fertiliser prices in June, 1983 followed by a further discount of 10 per cent on about 12 lakh tonnes of more than two years old stock lying with the Food Corporation of India. The other factors which contributed towards increased consumption were the set-up in short term loans to States and intensive fertiliser Promotion Campaign in 104 selected districts.[29]

Production and Imports of Fertilisers

There has been considerable increase in the domestic production of fertilisers over the years, but not enough to keep pace with the growth in consumption. Large quantities of fertilisers have to be imported. Imports totalled 2.76 million tonnes in 1980–81, when domestic production was 3.0 million tonnes. Domestic production increased to 4.09 million tonnes in 1981–82 and further to 4.4 million tonnes in 1982–83. The increase in production together with the slow pace of expansion in fertiliser off-take resulted in a reduction in imports, to 2.04 million tonnes in 1981–82, and further to 1.13 million tonnes in 1982–83. In 1983–84 the off-take soared, but domestic production increased only marginally. Imports, too, were programmed to increase only moderately. Against

[29] Information received from the Ministry of Agriculture in March 1989.

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the combined production and imports of 5.89 million tonnes, the off-take in 1983–84 was 7.72 million tonnes. This meant a heavy draw down of stocks. Indigenous production of fertiliser reached a level of 5.2 million tonnes in 1984–85. But to meet the rising demand, about 6.9 million tonnes of fertilisers was imported. Table 1.6 indicates the domestic production and imports of fertilisers during the period 1979–80 to 1987–88.

Table 1.6
Fertilisers Production, Imports and Subsidies

(Total NPK)

Year	*Production ('000 tonnes)*	*Imports ('000 tonnes)*	*Subsidies (Rs. crores)*		*Total*
			on imported fertiliser	*on domestic production*	
1	2	3	4	5	6
1979–80	2983.00	2005.00	280.80	296.28	577.08
1980–81	3005.00	2759.00	335.26	170.00	505.26
1981–82	4093.00	2041.00	100.00	275.00	375.00
1982–83	4404.00	1132.00	55.36	550.00	605.36
1983–84	4533.00	1355.00	141.83	900.00	1041.83
1984–85	5181.00	3624.00	727.31	1200.00	1927.31
1985–86	5756.00	3399.00	323.71	1600.00	1923.71
1986–87	7070.00	2305.00	197.12	1700.00	1897.12
1987–88	7131.00	984.00	114.20	2050.00	2164.20

Prices of imported as well as indigenously produced fertilisers are highly subsidised. With the growth in imports and domestic production, the quantum of fertiliser subsidy has grown. As may be seen from the above table, it increases from Rs. 375 crore in 1981–82 to Rs. 1041.83 crore in 1983–84, and Rs. 1,923.71 in 1985–86. During the year 1987–88 the quantum of fertiliser subsidies likely to be the order of Rs. 2,164.20 crore.[30]

(b) Seeds

Sustained efforts at increasing production of seeds, strengthening the infrastructure for processing and storage, streamlining the distribution channels, and enforcing rigid quality control measures together with a massive campaign for popularising the use of improved seeds yielded commendable results during the Sixth Five-Year Plan and consumption of improved seeds increased by 350 per cent in 1984–85 from the level of 1979–80. An outlay of Rs. 70.76 crore was provided for seed development schemes during the Sixth Plan. In the first four

[30] Government of India, Ministry of Finance: *Economic Survey (1985–86)*, New Delhi, 1986, p. 13 and information received from the Ministry of Agriculture in March 1989.

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years, expenditure was Rs. 63.39 crore. The total expenditure on schemes of seed development was Rs. 69.00 crore during the Sixth Five-Year Plan period.

The process of seed multiplication begins with the evolution of new genetic material by researchers and it passes through three stages, *viz.*, the breeder seed, foundation seed and finally the certified seed stage when it is made available to farmers for planting.

(i) Breeder Seeds In addition to the agricultural universities and research institutes, the National Seed Corporation (N.S.C.) and the State Farms Corporation of India, are producing breeder seeds. The year-wise position of the production of breeder seed from 1980–81 to 1986–87 is indicated in Table 1.7 below.[31]

TABLE 1.7
Breeder Seed Production, 1980–81 to 1986–87

Year	*Quantity in qtls.*
1980–81	5269.45
1981–82	3914.67
1982–83	17066.45
1983–84	30002.51
1984–85	29028.73
1985–86	23642.86
1986–87	28590.81

A proposal to decentralise breeder seed production especially of oilseeds is under consideration of the Government.

(ii) Foundation Seeds The arrangements for production of foundation seeds have now been decentralised. The State agencies and private producers are also multiplying foundation seeds under the prescribed quality control arrangements. The production of foundation seeds during 1986–87 was 4.29 lakh qtls. against only 1.09 lakh qtls. in 1980–81.

(iii) Certified Seeds The growth in distribution of certified/quality seeds during the Sixth Five-Year Plan period reflects in a way the growth of seed industry in India. Against the level of 14 lakh qtls. in 1979–80, the distribution of certified/quality seeds in 1984–85 was 48.46 lakh qtls. Year-wise details of distribution during the Sixth Plan period and first three years of the Seventh Plan is shown in Table 1.8[32]

The scheme of free distribution of improved varieties of seeds of cereals,

[31] Department of Agriculture and Cooperation, *Annual Report (1984–85), op. cit.*, p. 47 and information received from the Ministry of Agriculture in March 1989.
[32] *Ibid.*

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Table 1.8
Distribution of certified/quality seeds from 1980–81 to 1987–88

(Qty. in lakh qtls.)

Year	*Cereals*	*Pulses*	*Oilseeds*	*Fibre*	*Potato*	*Others*	*Total*
1980–81	19.98	1.06	2.28	—	1.69	—	25.01
1981–82	20.13	0.98	1.80	0.41	6.49	—	29.81
1982–83	25.10	2.35	3.76	2.06	8.79	—	42.06
1983–84	25.67	2.09	6.49	1.91	8.74*	0.07	44.97
1984–85	26.11	2.09	6.53	1.41	12.25*	0.07	48.46
1985–86 (likely achievement)	31.37	2.32	5.68	2.35	13.22*	0.07	55.01
1986–87 (anticipated)	35.27	3.39	6.29	1.72	9.06	0.10	55.83
1987–88 (anticipated)	35.44	3.46	6.54	1.54	9.16	0.16	56.30

* Estimated

oilseeds and pulses to the small and marginal farmers in the form of minikits instituted in 1982, has proved a very useful device for promoting the use of better seeds. The number of minikits distributed in the country increased from less than one lakh in 1980–81 to over 57 lakh in 1983–84. Each kit contains separately packed seeds, specific rhizobium culture and also the recommended package of practices and other instructions. The cropwise details of minikits distributed are given in Table 1.9.

Table 1.9
Distribution of Minikits

(in lakhs)

Item	*1980–81*	*1981–82*	*1982–83*	*1983–84*
Rice	0.50	4.40	11.25	11.62
Wheat	0.05	0.14	1.42	1.43
Millets	—	0.23	2.59	4.74
Pulses	—	0.63	4.01	19.59
Oilseeds	0.32	0.72	4.42	19.68
Total	0.87	6.12	23.69	57.06

The World Bank aided National Seeds Project (NSP) was an attempt at establishing a decentralised network for production, processing and storage of

[33] Government of India, Ministry of Finance: *Economic Survey (1984–85)*, New Delhi, 1985, p. 9.

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seeds. It was implemented in two phases in the states of Andhra Pradesh, Bihar, Haryana, Karnataka, Maharashtra, Orissa, Punjab, Rajasthan and Uttar Pradesh. During 1987–88, 31,402 qtls. of seeds were exported against the total of 27,204 qtls. seeds in 1983–84.

(c) Irrigation

At the beginning of the Sixth Plan, the irrigation potential under major and medium irrigation works was 26.6 million hectares and under minor irrigation, the potential was 30 million hectares. During the Sixth Plan, additional irrigation potential of the order of 10.9 million hectares was created. The addition has come both from medium/major irrigation projects and minor irrigation wells, tubewells, pumpsets, tanks, etc.

For a variety of reasons, there has been a lag between the creation of additional irrigation potential and its utilisation at the field level. While an additional potential of about 10.9 million hectares was created during the Sixth Plan, the additional utilisation was about 8 million hectares.

Minor Irrigation schemes are relatively less capital intensive and do not take long to be constructed. However, expansion of minor irrigation particularly from ground water schemes to a large extent, depends on private initiative. Investment decisions in this sector are naturally governed by the farmers' perception of profitability, availability at economic cost, infrastructure facilities like assured power diesel supply, construction material, equipment and credit. Rural electrification works need to be expedited in order to optimise returns from the existing investment in ground water irrigation. Besides, special efforts by State Minor Irrigation Departments and credit agencies could also accelerate the energisation of pumpsets and construction of dugwells. As the water requirements of pulses and oilseed crops are relatively low, it has been found desirable to encourage the tempo of expansion of irrigated area under these crops in regions with limited irrigation facilities.

The Public Accounts Committee (PAC) (1982–83)—Seventh Lok Sabha in their 141st reports on Planning Process and Monitoring Mechanism with reference to Irrigation Projects, while observing that many schemes of even First, Second & Third Plans were still continuing in the Sixth Plan, have urged that top-most priority should be given during the Sixth Plan for schemes undertaken during the first three plans and it should be ensured that these were completed without delay and without further cost escalation. They also added that since the ongoing schemes have necessarily to be the first charge on the Plan Provision, the Committee cannot too strongly emphasise the need for exercising utmost constraint in starting work on new major and medium irrigation schemes unless it is ensured that necessary funds therefore can be provided. It was suggested to the State Governments that outlays for the Annual Plan for 1984–85 for major and medium programmes should take into account the observation of the PAC and implementation ensured accordingly and that any proposed expansion of areas under the projects of the first three

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plans beyond the original scope might be taken up as a new project and the capital accounts of all the old projects closed in 1984–85.[34]

(d) Agricultural Implements and Machinery

Improved agricultural implements and machinery enable efficient use of farm power and help farmers to derive optimum results out of the application of inputs. Keeping the above benefits in view on the one hand and the availability of farm labour on the other, a policy of selective mechanisation has been adopted to modernise agriculture in the country. From a small beginning in the early sixties, agricultural mechanisation has made rapid strides. Tractors and irrigation pumps are becoming more popular for farm operations. Besides, reasonable headway has been made in the field of availability of power tillers, combine harvesters and threshers. The position of production and sale of tractors, power tillers, crawler tractors, combine (self-propelled and tractor-drawn) during the first three years of Seventh Plan has been as follows:[35]

TABLE 1.10
Production and Sale of Agricultural Implements and Machinery

	1985–86	*1986–87*	*1987–88*
Tractors Production	75550	80004	91976
Sale	76879	78823	93157
Power Tillers Production	3706	3325	3005
Sale	3754	3209	3097
Crawler Tractors Production	336	345	412
Sale	336	345	N.A.
Combines (Self-Propelled & Tractor-Drawn) Production	153	57	149
Sale	163	57	144

SOURCE: Monthly returns from machinery manufacturers.

Under a Centrally Sponsored Scheme during the Third and Fourth Plan periods, State Agro Industries Corporations were set up in the 17 major States. Later, two more similar corporations have been established in Manipur and Pondicherry under the State Sector Scheme. The principal objectives of these Corporations are to develop and manufacture suitable equipment, to increase the productivity of agriculture, processing of agricultural produce, setting up of agro-based industries, distribution of agricultural inputs and providing customs hiring services to the farmers.

These Corporations took the distribution of tractors, agricultural implements, pumpsets, custom hiring services for agricultural operations and land reclamation, manufacture of granulated fertiliser compost and rihzobium culture,

[34] *Annual Plan (1984–85)* of Planning Commission, *op. cit.*, p. 73.
[35] Information received from the Ministry of Agriculture in March 1989.

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formulation of pesticides and establishment of agro-based industries such as fruit processing, vegetable canning, cattle and poultry feed, edible oils, etc.

(e) Plant Protection

Plant Protection is an integrated part of the crop production strategy to sustain the crop yield potential. The major activities/schemes included in plant protection are regular pest surveillance of insect-pest and disease build up on crops for rendering advise to take up timely plant protection measures; encouraging adoption of biological methods of pest control, popularisation of Integrated Pest Management concepts; imparting training in modern plant protection technology to various functionaries of Department of Agriculture of States/UTs; constant vigil on locust build-up in the Scheduled Desert Area and enforcement of legislations on domestic and foreign quarantine and the Insecticides Act, 1968. Besides, under Centrally Sponsored Scheme, assistance is extended to States/UTs for controlling pests of agricultural importance.

(f) Agricultural Credit

Agricultural Credit System in India is one of the largest in the world. It covers cooperatives, commercial and regional rural banks (RRBs). They operated in 1986–87 through 1,58,076 base level units consisting of 89010 primary agricultural credit societies, 2425 branches/primary land development banks, 53565 branches of commercial banks and 13076 branches of RRBs.[36]

National Bank for Agriculture and Rural Development (NABARD) is the apex institution at the national level, accredited with the responsibility for overall development, policy planning and financial support in the sphere of agricultural credit. Under the umbrella of Reserve Bank of India (RBI), NABARD provides refinance facilities through cooperatives, commercial banks and regional rural banks. It operates through its regional offices located at the headquarters of States and Union Territories.

During the cooperative year 1986–87, NABARD sanctioned a credit limit of Rs. 1425.29 crore to state co-operative banks on behalf of Central Cooperative banks for disbursement of short-term loans as against Rs. 1308.82 crore during 1985–86. The total refinance provided by NABARD under schematic lending upto the end of June, 1987 was 7953 crore. The disbursement during 1986–87 was Rs. 1334 crore registering an increase of 12 per cent in the pursuing year. The share of state land development banks and state cooperative banks were 32.4 per cent and 4.9 per cent respectively, while the shares of commercial banks and regional rural banks were 47.1 per cent and 15.6 per cent respectively. Details of short-term and term-loans disbursed by cooperatives and commercial banks during 1984–85 and the first three years of Seventh Plan period are given in Table 1.11.[37]

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[36] *Ibid.*
[37] *Ibid.*

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TABLE 1.11

Loan Disbursal by Cooperatives and Commercial Banks, 1984–1988

(Rs. in crores)

	1984–85	*1985–86*	*1986–87*	*1987–88 (target)*
1	2	3	4	5
I. Cooperative				
(i) Short-term	2408	2747	2620	3289
(ii) Term-loan	797	927	1081	1056
	3205	3674	3701	4345
II. Commercial Banks & Regional Rural Banks				
(i) Short-term (ii) Term-loan }	2560	3680	3695	5300
	2560	3680	3695	5300

Agricultural Price Policy

Agricultural price policy is an important component of the Government's strategy for promoting agricultural development. The Agricultural Prices Commission (since renamed as Commission for Agricultural Costs and Prices—CACP) by making recommendations on procurement/support prices in respect of a number of important agricultural commodities, has, over the years, helped in the evolution of a stable and positive price policy for agricultural products. While recommending a price for a commodity, the Commission takes into account not only a comprehensive overview of the entire structure of the economy of a particular commodity but also keeps in view the likely effect of the price policy on the rest of the economy, particularly, on the cost of living, level of wages, industrial cost structure, etc.[38] In addition, it takes into consideration the available data on cost of production, trends in market prices, demand and supply situation, changes in input prices and tiller crop price policy. It also keeps in view the changes in terms of trade between agricultural and non-agricultural sectors.

The concern of the Government to ensure remunerative prices of the growers is adequately reflected in the enhancement of procurement/support prices in the recent years as may be seen from Table 1.12.[39]

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[38] Department of Agriculture and Cooperation, *Annual Report (1984–85)*, *op. cit.*, p. 68.

[39] Information received from the Ministry of Agriculture in March 1989.

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TABLE 1.12
Procurement/Minimum Support Prices
(According to Marketing Year)

Commodity	*Variety*	*1979–80*	*1987–88*	*1988–89*	*Percentage increase in 1988–89 over 1979–80*
1	2	3	4	5	6
Paddy	Common	95.00	150.00	160.00	68.4
Coarse Cereals (Jawar, Bajra Maize, Ragi)	FAQ	95.00	135.00	145.00	52.6
Wheat	"	115.00	166.00	173.00	50.4
Barley	"	67.00 (1978–79)	135.00	135.00	101.5 (1988–89 1978–79)
Gram	"	140.00	280.00	290.00	107.1
Arhar	"	165.00	325.00	360.00	118.2
Moong	"	175.00	325.00	360.00	105.7
Urad	"	175.00	325.00	360.00	105.7
Sugarcane*	"	12.50	18.50	19.00	52.00
Cotton 320-F/J-34/F414/H-777		275.00	440.00	500.00	81.8
Groundnut	H-4	—	550.00	600.00	—
	FAQ	190.00	390.00	430.00	126.3
Jute W-5 Grade in Assam		155.00	240.00	250.00	61.3
Rapeseed & Mustard	FAQ	245.00	415.00	430.00	75.5
Sunflower	"	175.00	390.00	450.00	157.1
Soyabean	Black	175.00	260.00	275.00	57.1
	Yellow		300.00	320.00	—
Safflower	FAQ	—	415.00	415.00	—
Toria	"	—	375.00	400.00	—
Tobacco VFC	F-2 grade	7.50	11.25**	11.75**	56.7
(Rs./kg)	L-2 grade	—	12.20***	12.80***	—

* These prices are linked to a basic recovery of 8.5 per cent with a proportionate premium for every 0.1 per cent above that level.
** Black soil.
*** Light soil.

Agricultural Extension

The management of Training and Visit (T&V) system of extension, introduced in India in late 1970s with World Bank assistance is now in operation in 17 States namely, Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra,

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Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. A total of 15 World Bank Projects from 1977 to 1988 at a cost of Rs. 628 crore facilitated the professionalisation of the extension services in India through the T&V System.

The professionalisation of the agricultural extension services in India through the Training & Visit (T&V) system has been widely acclaimed. The T&V system is now being implemented in 40 countries in the World. India attracts experts from all over the world to familiarise with the successful working of the T&V system here.

The T&V system is based on extension exclusively, single line of command, linkage with research, regular training of Village Extension Workers (VEWs) and systematic pre-specified visits of the VEWs to the farmers. The system in India has improved the professional skills of the VEWs and, for the first time, the extension system not only regularly trains the VEWs but also takes the location, specific problems of the farmers to the research institutions for their effective solution. The impact of T&V system has been felt not only in increasing crop yields but also in introducing new cropping patterns.

Training of Extension Personnel

In order to improve the professional competence of various categories of extension functionaries, a three tier system of training is followed. The grass-root extension workers working under State Departments are trained at various State Training Centres/Institutes. There are several areas in agriculture, horti-culture and animal husbandry, etc., for which adequate facilities are not available within the States. To meet such training needs of the middle level extension workers, the Directorate of Extension organises about 100 training programmes through State Agricultural Universities, ICAR Institutes and other National/Regional Institutes. In all, 81 subject matter training courses including 18 training programmes of women's interest of various duration with 1430 participants were conducted during 1987–88. In addition to this, about 60 training programmes in Extension Techniques and Communication courses were conducted with 1066 participants at our three Extension Education Institutes. One USAID assisted training programme on "On Farm Water Management Technology" was also conducted with 17 subject matter specialists.

We have a National Centre for Management of Agricultural Extension at Hyderabad for imparting training to the senior and middle level Extension Managers in Extension Management. During 1987–88, 13 training programmes were organised with about 322 participants from different States.[40]

Agricultural Trade

The contribution of the Agricultural sector to the export trade of India has continued to be significant and commendable. During 1984–85, the exports of

[40] *Ibid.*

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principal agricultural commodities and agro-based manufactured items, including, *inter alia*, plantation products, textiles covering cotton, jute/wood, etc. and other agricultural commodities/products, aggregated to more than Rs. 3,500 crore. Of these, the exports of principal agricultural commodities alone were of the order of Rs. 1622 crore during 1984–85. It is significant that agricultural exports, over the years, have performed well, considering particularly, against the background of the unfavourable international trading environment, shrinkage of commodity trade and depression of commodity prices.

The major agricultural commodities exported during 1984–85 were fish and preparations thereof, vegetables and fruits, rice oilcakes, tobacco (unmanufactured), raw cotton, sugar and spices. Major declines in exports occurred in oilcakes, raw cotton and sugar in 1984–85. Exports of rice also declined in 1984–85 compared to 1983–84 while wheat exports had risen.

The export of principal agricultural commodities touched the level of about Rs. 1900 crore in 1985–86 as against the stagnating export level of about Rs. 1600 crore during 1984–85.

If agro-based manufactures were taken into account, the total exports from the agricultural sector (including both principal agricultural commodities and agro-based manufactured items) were of the order of Rs. 4282 crore in 1985–86.

The export of selected agricultural and allied products swang up to an estimated level of Rs. 2000 crore in 1986–87 from the level of Rs. 1900 crore in 1985–86.

The important commodities which contributed to the expansion of agricultural exports include tobacco, cashew, oilmeals, marine products and raw cotton. The export of vegetables, meat and meat products also increased.

If the agro-based manufactures were taken into account, the total exports from agricultural sector (including both principal commodities and agro-based manufactured items) were of the order of Rs. 4500 crore during 1986–87.

The export of selected agricultural and allied products further swang up to the level of Rs. 2278 crore during 1987–88 from the level of Rs. 2000 crore during 1986–87. The important commodities which contributed to the expansion of agricultural exporters include cereals, spices, cashew, marine products, fruits and vegetables and tobacco.

Exports of both agriculture sector (including principal commodities and agro-based manufactured items) are about of the order of Rs. 6550 crore from April, 1987 to March, 1988.[41]

AGRICULTURAL POLICY DURING SEVENTH PLAN (1985–90)

The Seventh Five-Year Plan (1985–90) aims at an accelerated rate of agricultural development and self-sufficiency in foodgrains and edible oils at higher levels of consumption. As in the previous plans, agriculture which is the source

[41] *Ibid.*

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of livelihood of the overwhelming majority of our people has been given the highest priority keeping in view, the thrust of the Seventh Five-Year Plan on food production, productivity and employment as recommended by the National Development Council.[42]

The Seventh Plan is to have substantial increase in agricultural production, with a targeted growth rate of 4 per cent per annum. Agricultural growth is a crucial element in the strategy to tackle the problems of poverty and unemployment.[43]

The perspective plan for agricultural development aims at maintaining self-sufficiency in foodgrains and attaining self-sufficiency in respect of pulses, oilseeds and fibre. Its other objectives are to maximise employment opportunities to promote conservation and environmental protection measures so as to arrest the degradation of the natural endowments of soil, water and other resources.

The following are the strategies for agricultural development in the Seventh Plan:

1. Extending the green revolution to new areas through its emphasis on raising the productivity of rice in eastern region and in rainfed and dryland agriculture. This should lead to faster growth in agricultural output in areas which in the national context, are economically backward. This will help to reduce regional imbalances in social development of the nation.
2. Efforts are to be intensified during the Seventh Plan for the strict enforcement of the existing legislation relating to ceiling on land holdings, especially in the newly irrigated areas.
3. For enhancing the productivity and reducing instability of production in dryland areas, emphasis has to be laid on development of water sheds and adoption of improved practices, intensification of research and management programmes for production of oilseeds and pulses and for raising the productivity of small and marginal farmers.
4. Special attention will also be paid to the programmes for afforestation during the Seventh Plan.
5. A substantial increase in the area under High Yielding Varieties, increased consumption of chemical fertilisers (with emphasis on improvement in the efficiency of fertilisers-use), strengthening of institutional arrangements for timely delivery of key inputs, intensifying pest and disease surveillance arrangements and timely control operations and strengthening of the extension network on the pattern of Training and Visit (T&V) system for quick and effective transfer of technology to the farmers.
6. A key element in the agricultural strategy is the rapid expansion of irrigation facilities. The emphasis is on early completion of ongoing

[42] Ministry of Agriculture and Rural Development, *Annual Report (1984–85)*, *op. cit.*, pp. 3–4.
[43] Government of India: *Seventh Five-Year Plan (1985–90), Mid-term Appraisal*, New Delhi, 1988, p. 64.

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schemes which are in an advanced stage of construction, and on speedy utilisation of potential created by improvement in water management. New starts are to be restricted to medium irrigation schemes in drought prone, tribal and backward areas and to minor irrigation schemes.[44]

Plan Outlays

In line with the priority attached to the agricultural sector and the approach and strategy adopted for achieving rapid increase in agricultural production and employment, the financial outlays for the Seventh Plan were fixed at a much higher level than those for the Sixth Plan. Thus the total outlay proposed for Agriculture and Allied Programmes for the Seventh Plan was Rs. 10,573.62 crore, as against the actual expenditure of Rs. 7323.00 crore, for the Sixth Plan.[45] Seventh Five-Year Plan Outlays for Agriculture and Allied Programmes are given in Appendix 1.3.

Proposed outlay and expenditure on Central and Centrally Sponsored Schemes during the Seventh Plan are given in Appendix 1.4.

Agricultural Performance

The Seventh Five-Year Plan set before the country, the target of 4 per cent growth in agricultural production. The first three years of the Plan experienced drought conditions of varying magnitude. The country faced one of the severest droughts during Kharif 1987–88. Only 14 out of 35 meteorological sub-divisions received excess or normal rainfall through the south-west monsoon as compared to 16 in 1966 and 19 in 1979 which were severe drought years in the past. Around 265 districts had deficient or scanty rainfall. Out of net crop area of 143 million hectares crops in about 45 million hectares spread over 269 districts, in fifteen States and six Union Territories were affected by drought. With a view to make up the loss in Kharif production in 1987–88, a special Rabi production strategy was evolved and implemented vigorously.with the aim of maximising production in the Rabi season. Due to concerted efforts made by the Central and State Governments in the implementation of the Rabi production strategy the over-all foodgrains production in Rabi season recorded an increase of 1.31 million tonnes over Rabi production in the previous year. Production increased from 63.21 million tonnes in 1986–87 to 64.52 million tonnes in 1987–88. Despite the adverse weather conditions in 1987–88, the total foodgrain production in the country was 138.41 million tonnes which was only 5 million tonnes less than the production of 143.41 million tonnes achieved in 1986–87.

After a review of the foodgrains production situation in the mid-term appraisal of the Seventh Plan, a Task Force headed by Member (Agriculture),

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[44] Government of India, Planning Commission: *Seventh Five-Year Plan (1985–90)*, Vol. II, New Delhi, 1986. pp. 82 and 84.

[45] *Ibid.*, p. 102.

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Planning Commission, was set up under the directions of the Prime Minister. Keeping in view the suggestions of the Task Force, the target of production of foodgrains was fixed at 166.57 million tonnes for 1988–89 and 175.2 million tonnes for 1989–90. To achieve the target, a Special Foodgrains Production Programme (SFPP) has been formulated and is being implemented in 169 districts in 14 States.

The prospects of Kharif production and the strategy for Rabi production 1988–89 were reviewed in the National Conference on Agriculture on 29th and 30th September, 1988. It was decided to raise the target of foodgrains production to 170 million tonnes. Vigorous efforts were made to achieve the revised target through better input support and water use management. The overall production of foodgrains during 1988–89 is likely to exceed the target of 166.57 million tonnes. Similarly, a record production of oilseeds is anticipated. The prospects of production of cotton, sugarcane and other commercial crops are also bright.[46]

Programme for the Year 1989–90

The following thrust programmes for agricultural development indicated below are in operation:

(i) Special Rice Production Programme in the Eastern States (SRPP)
(ii) Special Foodgrains Production Programme (SFPP)
(iii) National Pulses Development Programme (NPDP)
(iv) National Oilseeds Development Project (NODP) and Oilseeds Development Thrust Project (OPTP)
(v) National Watershed Development Programme for Rainfed Agriculture (NWDP)
(vi) Assistance to Small & Marginal Farmers (SMFA)
(vii) Intensive Cotton Development Programme (ICDP)
(viii) Special Jute Development Programme (SJDP) and
(ix) Reclamation of Alkali Soils in Haryana, Punjab and Uttar Pradesh.

The Oilseeds Technology Mission, launched in 1986 continued to provide intensive technology support to the Oilseeds Development Programme. The OPTP, started in 1987–88 with 100 per cent Central Assistance continued to be implemented during 1988–89.

Fertilisers and Manures

As a result of the various steps taken, the consumption of fertilisers in the country increased from the level of 69 lakh tonnes of nutrients (NPK) during 1950–51 to an estimated level of 90.12 lakh tonnes of nutrients in the 1987–88. Due to favourable weather conditions which prevailed during the current year and the various promotional measures taken by the Government, the estimated

[46] Information received from the Ministry of Agriculture in March 1989.

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consumption of fertilisers is expected to be 113 lakh tonnes as against the target of 102 lakh tonnes, representing a 25 per cent increase in the consumption over the previous year.

The lead fertiliser supply system has enabled proper estimation of requirement and consumption of fertilisers and ensured adequate availability of fertilisers at different consumption points in the country. Steps have been taken to establish a National Centre and six Regional Centres under the National Project on Development and Use of Bio-Fertilisers.

In order to promote fertiliser use and strengthen soil testing facilities in low fertiliser consumption and rainfall areas, which constitute about 70 per cent of the gross cropped area, a project covering 60 identified rainfed districts in 16 States was taken up for implementation during 1988–89.[47]

It is also proposed to strengthen 30 out of 44 existing laboratories in 18 States with 50 per cent Central assistance and also set up 3 new fertiliser control laboratories with the 100 per cent State Government assistance at the three port cities of Kandla, Mangalore and Vishakhapatnam.

In the current financial year, a discount of 7.5 per cent on the notified consumer price of Urea has been allowed. This has further reduced the price per bag of Urea by Rs. 8.80.

To further popularise the use of fertiliser, a scheme for opening additional 50,600 outlets in all the 446 districts has been sanctioned in 1988–89. This will particularly benefit the farmer in the rainfed remote and in accessible areas. Under this scheme, Rs. 1200 is provided as subsidy for every retail outlet.

Fertiliser is being supplied in small packets of 25 kg., 15 kg. and 10 kg. to ensure fertiliser use by farmers being in remote villages. Fertiliser is being made available to the farmers at low and subsidised prices. The quantum of subsidy on fertilisers has increased from Rs. 24 crore in 1977–78 to about Rs. 3000 crore in 1988–89.[48]

Seeds

In order to improve agricultural productivity a New Policy on Seeds Development has been formulated which is effective from 1st Oct. 1988. The New Seed Policy has been evolved with special emphasis on (a) the import of high quality seeds, (b) a time-bound programme to strengthen/modernise plant facilities, (c) effective observance of procedure for quarantine/plant entry quarantine, and (d) incentive to encourage the domestic seed industry to make the country self-reliant in seed sector. The New Seed Policy liberalising the import of seeds of oilseeds, pulses, coarse grains, vegetables and flowers will go a long way in stepping up productivity and providing enhanced income to the farmers.

The National Seeds Project Phase III was approved by the World Bank on 25.8.1988. The total outlay for the project is Rs. 239.60 crore. The World Bank

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[47] *Ibid.*
[48] *Ibid.*

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will assist financially to the extent of US $ 150 million. The main objective of the project is to support Government efforts to assist Indian farmers by ensuring timely and adequate availability of quality seeds of suitable varieties at economical prices.

Distribution of certified/quality seeds has witnessed a tremendous increase from 14 lakh quintals in 1979–80 to 56.30 lakh quintals during 1987–88.

A buffer stock scheme has been in operation since 1978 for meeting unforeseen contingency arising out of natural calamities like drought, floods, disease, etc. From 1987–88, the scheme has been modified as a Centrally Sponsored Scheme to include participation of State Governments. The revised scheme envisages that NSC will be sole implementing agency in respect of South-Eastern region for which the cost of maintenance of buffer stock will be reimbursed to the Corporation. The State Seeds Corporations will maintain buffer stock for their States at 50:50 cost sharing basis. Another noticeable shift from the original pattern is that the foundation and certified seeds of only pulses, oilseeds and coarse grains namely Bajra, Jawar and Maize will be maintained for the States other than North-Eastern States. For North-Eastern region in addition to pulses and oilseeds the seeds of paddy and maize are also being maintained.

To review the status and strategy of seed production and distribution an expert group was constituted.[49]

Plant Protection

The major emphasis in respect of plant protection continued to be on integrated pest management. To ensure that the chemicals used had the requisite degree of efficacy, quality control of pesticides was accorded the highest priority. In addition, action was initiated to evolve a package of measures to make Plan Quarantine procedures more effective and quarantine clearance time bound.

In view of the serious locust situation in African countries and anticipating the possible threat of a locust invasion, extensive and intensive field surveys were conducted by the 34 locust out posts in the scheduled desert areas of Rajasthan, Gujarat and Haryana where the locust is an epidemic pest. The Field Research Unit at Bikaner continued the studies on various aspects of locust biology and ecology in the field for improving the control techniques.

In order to popularise and propagate the Integrated Pest Management Project among the farmers, field demonstrations at 32 locations in farmers' fields were organised by the field units of Central Directorate of Plant Quarantine. To minimise the dependence on the use of chemical methods of plant protection, major emphasis has been laid on the use of biological means for effective management of crop pests/weeds. By mass release of about 536 million predators/parasites the population of important crop pests were effectively controlled. Multi-location field trials with Nuclear Polyhydrosis Virus (NPV) against Helitosis have shown encouraging results.

[49] *Ibid.*

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Vigil against the entry of exotic pests and disease through international trade is being kept by 26 Plant Quarantine and Fumigation Stations located at all international airports, sea ports and land frontiers.

To supplement the State efforts in training of officials on aspects of plant protection technology, the Central Plant Protection Training Institute (CPPTI), Hyderabad, continued to organise several long-term and short-term training courses.

The Registration Committee constituted under the provisions of the Insecticides Act, 1968 and Rules granted registration for 912 applicants till October, 1988 against a total of 1216 applications received during the period. Twenty seven new chemicals were also approved for inclusion in the list of the approved pesticides.

The anticipated demand for pesticides (technical grade) material has been estimated at 84,675 for 1988–89. The availability of pesticides, their raw material and solvent was kept under constant review and remedial action was taken wherever the possibility of any shortage was felt.[50]

The Finance Minister, while presenting the 1988–89 Budget announced reduction of import duty on 15 pesticides from 105 per cent to 70 per cent reduction in import duty on raw materials used in the production of some technical grade pesticides from 147 per cent to 60 per cent and full exemption of excise duty on 23 indigenously produced intermediates used for the manufacture of pesticides.

Irrigation

The major objectives in the irrigation sector during the Seventh Plan will be broadly as follows:

(a) To give priority to the completion of unfinished irrigation projects which are in an advanced stage and are capable of yielding full or partial benefits in the Seventh Plan; giving priority to projects benefiting the tribal areas, drought-prone areas and areas with a sizeable scheduled castes population.

(b) To restrict new starts to medium projects in drought-prone, tribal and backward areas. More emphasis will be laid on minor irrigation programmes which could be completed quickly and start yielding benefits.

(c) To give the highest priority to the utilisation of the existing irrigation potential for optimising production by constructing field channels, land levelling and introduction of Warabandi.

(d) To solve the problems arising from salinity and water-logging in irrigated areas by giving due priority to the drainage schemes for completed irrigation projects and by including the drainage component in new projects.

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[50] *Ibid.*

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(e) To accelerate exploration and exploitation of ground-water on a priority basis, particularly in the eastern and north-eastern regions.
(f) To ensure satisfactory maintenance of canals and the distribution system by making adequate financial allocations for such purposes.
(g) To take up necessary action for early implementation of the recommendations of Rashtriya Barh Ayog, particularly for legislation to prevent encroachment in flood-prone areas.[51]

Agricultural Implements and Machinery

Agricultural implements and machinery play a crucial role in increasing the productivity in agricultural production. Considering the stress laid on propagating the use of improved technology among the small and marginal farmers, particular emphasis has been given to performance evaluation of agricultural machinery with a view to provide quality machines to farmers and to impart training and skills to technicians, rural youths and farmers.

The programmes of selective mechanisation continued during the year. The Indian tractors industry has made rapid progress. The sales of tractors increased quite significantly and it is anticipated that the sale for 1988–89 would be of about one lakh tractors.

The Central Farm Machinery Training and Testing Institute Budhani and the Northern Region Farm Machinery Training and Testing Institute, Hissar continued to train 675 trainees per annum. These institutes, besides imparting training, conducted performance tests on tractors, combined harvestors, power tillers, etc. and released 58 test reports up to October, 1988. Initiative was taken in the formulation of standards for agricultural implements and hand tools through the Bureau of Indian Standards.

The Government of India and the Government of Japan through exchange of notes agreed for a Japanese Grant in Aid for Farm Machinery Training and Testing Institute.

The State Agro-Industries Corporations which were promoted by the Government of India in 19 major States have played a vital role in the area of manufacture/distribution of fertilisers, pesticides, improved agricultural implements and hand tools, processing of fruits and vegetables, extraction of edible oils, agricultural machinery hiring and installation and service of bio-gas plants and irrigation pumpsets, etc. The performance of the State Agro-Industries Corporations for the year 1986–87 was judged and best productivity performance award was won by the Maharashtra Agro-Industries Corporation Limited.

The Centrally Sponsored Scheme on establishment of farmer agro-service centres and popularisation of improved agricultural implements and hand tools has been conducted during 1988–89.

The proposal to introduce a Central Sector Scheme for the purpose of

[51] *Ibid*

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identifying designs of improved tools and producing industrial designs and to fund these activities is under the consideration of the Department. The industrial designs would be made available to the manufacturers in order to improve the quality of agricultural implements."[32]

The severity of the drought in 1987–88 and the slackening of agricultural production underline the continuing sensitivity of agricultural performance to the vagaries of weather, although there is no doubt that the ability of the economy as a whole to cope with drought is much greater today than earlier. The Government has introduced a number of programmes during the Seventh Plan in order to achieve the desired results in the agricultural fields. The important schemes launched so far in the Seventh Plan are 'Special Rice Production Programme for the Eastern Region', 'Special Foodgrains Production Programme', 'National Pulses Development Programme', 'National Oilseeds Development Project', 'National Watershed Development Programme for Rainfed Agriculture', 'Intensive Cotton Development-Programme', 'Special Jute Development-Programme', and 'Centrally Sponsored Programme on Reclamation of Alkali Soils, in Haryana, Punjab and Uttar Pradesh.

Special Rice Production Programme (SRPP) for Increasing Production and Productivity in the Eastern States

The scheme is under implementation in 439 selected blocks—Assam (37), Bihar (118), Eastern M.P. (40), Orissa (63), Eastern U.P. (102), West Bengal (70) and Tripura (9). In Tripura, the scheme has been extended only from 1988–89. Under the programme, emphasis will be laid on the spread of improved rice production technology through the training of farmers and farm labourers including women and organisation of field demonstrations, etc. Besides inputs like seeds, fertilisers, improved farm implements, plant protection equipment, pesticides, etc. will be made available to resource poor farmers at subsidised cost. Various programmes of work will be taken depending on the needs of the individual states/block and local situation.

Earlier the expenditure under the scheme was shared equally (50:50) by the Government of India and the concerned States. However, during 1989–90 it is proposed that the expenditure under the scheme is shared on 75:25 by the Government of India and the concerned States mainly to reduce the financial burden on the States as they have to provide finance for implementation of Special Foodgrain Production Programme-Rice (SFPP) also.

As compared to the last year, reduced outlay has been proposed for 1989–90, because of the reason that during the year both SRPP and SFPP-Rice schemes are supposed to be implemented at the same level with the identical components at the financial outlay of Rs. 4.00 lakh per block. The proposed provisional outlay during 1989–90 is Rs. 13.60 crore as Government of India's share including the envisaged expenditure for the concurrent evaluation."[33]

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[32] *Ibid.*
[33] *Ibid.*

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Special Foodgrains Production Programme

The scheme was launched in 1988–89 covering 169 identified districts spread over in 14 States of Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The focus crops covered under the scheme included rice, wheat, maize, gram (chick-pea) and Arhar (Pigeon-pea). During 1989–90, it is proposed to include Kerala also in focus crops of rice. Besides coarse cereals are also proposed to be included as focus crops in some of the States.

The strategy under this programme will be as follows:

(i) Increased fertiliser use by 20 kgs. of nutrients per hectare (kg./ha.).
(ii) Use of improved high yielding variety seeds
(iii) Better management of weeds and timely control of pests and diseases.
(iv) Harnessing ground-water through tubewell, completed on-farm development works in command areas and completing the near completion irrigation projects and efficient use of stored water.
(v) Bonus/incentive for production/procurement of foodgrains.
(vi) Increased flow of short-term and long-term credit.

The focus crop wise briefs of the programme components are given below:

(a) *SFPP-Rice:* During 1988–89 the Rice Development Programme under the scheme was implemented in 106 identified districts covering 1610 blocks in the States of Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal. It is proposed to include the State of Kerala for Rice Development Programme 1989–90.

Under the scheme, emphasis will be laid on the spread of improved rice production technology and adoption of increased and efficient use of inputs. Assistance will be provided to the resource poor farmers for encouraging them to use inputs like quality seeds, micro-nutrient, soil ameliorants, pesticides, etc. Assistance would also be provided for plant protection equipment and improved farm implements, etc. The programme components under the scheme will be identical to Centrally Sponsored Scheme of Special Rise Production Programme being implemented in the Eastern States.

(b) *SFPP-Wheat:* During 1988–89 the Wheat Development Programme was implemented in 72 identified districts spread over in seven States of Bihar, Gujarat, Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh. The programme components included are seed buffer stocking, seed distribution soil ameliorants and termite control. During 1989–90, it is proposed to continue the scheme in 72 identified districts in these seven states. Under the scheme, emphasis will be laid on increased and efficient use of inputs. The programme component proposed to be included are seed distribution, seed treatment, zinc sulphate

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and weed control. These inputs are proposed to be provided to the farmers on subsidised cost.

(c) *SFPP-Maize and Coarse Cereals:* The Maize Development Programme was implemented in 28 identified districts spread over to 5 States of Bihar, Gujarat, Madhya Pradesh, Rajasthan and Uttar Pradesh during 1988–89. It is proposed, during 1989–90, to include the focus crop of Jawar in U.P., Madhya Pradesh, Maharashtra, Andhra Pradesh, Tamil Nadu and Karnataka; Bajra in Rajasthan, Gujarat and Haryana; and Ragi in Karnataka, Andhra Pradesh, Tamil Nadu and Maharashtra. Under the Scheme, the emphasis will be laid on the increased and efficient use of inputs and better management of pests and diseases. The programme components under Maize and Coarse cereals proposed to be included are seed distribution, weed control and plant protection.

The total outlay for the Special Foodgrain Production Programme during 1988–89 was Rs. 70 crore. An outlay of Rs. 74.62 crore (provisional) is earmarked for 1989–90.[54]

National Pulses Development Programme

Pulses are a rich source of protein and a vital part of the diet of the majority of the people of India. Pulses are grown all the year round i.e. Kharif, rabi and summer.

Pulses production has been ranging between 11 and 13 million tonnes over the years. During 1987–88, the production of pulses was 11.4 million tonnes. The country is short in supply of pulses by about 10 per cent. The production target for the current year is 13.3 million tonnes and the anticipated achievements may be between 13 and 14 million tonnes. The target for 1989–90 is about 14.5 million tonnes. For achieving the target, a Centrally Sponsored National Pulses Development Programme (NPDP) was launched in the year 1986–87. The basic objective of the NPDP is to increase the production of pulses by adopting location specific technology. In this programme, thrust is given to launch crop and area specific programmes with regard to major pulses like gram, arhar, peas, lentil, moong and urad. In fact this programme is a district oriented mission and is expected to achieve the increased level of productivity within a time frame. It also provides enough scope for adoption of the twin technology of production by increasing the area and yield per unit of area.

For this programme, an amount of Rs. 8 crore (central share) has been envisaged for the year 1989–90. The additional amount of Rs. 2 crore over 1988–89 is proposed to be utilised for strengthening the following programmes:

(a) Control of insect on larger areas through assistance of plant protection chemicals;

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[54] *Ibid.*

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(b) Increased multiplication and distribution of seeds; and
(c) Increased coverage under Seed Village Programme."[11]

National Oilseeds Development Project (NODP) and Oilseeds Production Thrust Project (OPTP)

Realising the need for enhancing the production of oilseeds, a development programme for oilseeds was started in 1984–85 and is in operation in 180 districts of 17 States on 50:50 funding between the Centre and the States. The Government of India's share will be provided to the States for organising demonstrations, production of foundation seeds and pre-positioning of certified seed, minikit distribution, production of certified seed, of groundnut and soyabean to farmers field under Village Scheme, opening of additional retail outlets in interior areas, pre-positioning of plant protection chemicals, supply of plant protection equipments, arrangement of mobile plant protection squads in endemic areas, distribution of improved farm implements and sprinkler sets in groundnut areas, supply of Rhizobium culture and soil testing. The project covers development of all 9 oilseeds crops namely groundnut, rapeseed-mustard, soyabean, sunflower, sesamum, safflower, niger, linseed and castor.

The total outlay of the project during the Seventh Plan is Rs. 170 crore, Rs. 100 crore as Central Share and Rs. 70 crore as State Government's share. An outlay of Rs. 14.5 crore as Government of India's share was provided during 1988–89.

In addition to NODP, Government of India has sanctioned an Oilseeds Production Thrust Project (OPTP) with 100 per cent Central assistance in 14 States. It is currently being implemented in 240 districts of 17 States including Tripura. The project covers development of 4 major oilseeds namely groundnut, rapeseed-mustard, soyabean and sunflower which accounts for 85 per cent of the total production of oilseeds. Under the project, emphasis has been placed on seed production of large scale, extensive plant protection measures, transfer of technology through demonstrations, supply of improved farm implements application of sulphur in groundnut and rapeseed-mustard for augmenting the seed yield and oil content. Besides, special efforts have been made to expand sunflower cultivation in non-traditional areas. Russian sunflower seeds have been imported and is being multiplied to propagate it among the farmers. Trials are being conducted to propagate ICRISAT technology groundnut in various parts of the country.

Although during 1987–88, Kharif production was severely affected by drought in oilseeds States, the production during this period, as a result of concerted efforts for improving Rabi oilseeds is likely to reach at the level of 123 lakh tonnes. The production of Kharif oilseeds crops is likely to exceed the normal oilseeds Kharif production of about 66 lakh tonnes. The target proposed for oilseeds production during the year 1989–90 is 160 lakh tonnes. These two

[11] *Ibid.*

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programmes are proposed to be continued during 1989–90 with the same outlay as provided during 1988–90 i.e. Rs. 17.50 crore for NODP and Rs. 35.00 crore for OPTP (Central Share).[56]

National Watershed Development Programme for Rainfed Agriculture

The thrust of agricultural development has been largely concentrated in irrigated areas, which are capable of giving assured and quick results. The farmers in rainfed areas, particularly the smaller ones, are still practising subsistence farming. Wide fluctuations in production occur in these areas year after year and these fluctuations adversely affected the production, thereby off-setting the benefits accruing on account of increase in irrigated areas. Accordingly, in the Seventh Plan, higher priority has been assigned to the development of dryland/ rainfed farming.

For the development of dryland agriculture, a Centrally Sponsored Scheme entitled "The National Watershed Development Programme for Rainfed Agriculture" is being implemented in 1986–87 which is to run through 1989–90. The programme is being implemented in 16 States covering about 99 districts. During 1987–88, a sum of Rs. 603.48 lakhs was released keeping in view earlier savings with the States. Area coverage has been reported to be about 1.00 lakh ha. from 12 States out of 16 States. For 1988–89, the outlay (Central Share) was Rs. 30 crore. The main strategy adopted for 1988–89 is:

(i) Taking the "watershed" as a basis to conserve soil and moisture for crop production;
(ii) To stabilise and increase crop yields from rainfed farming and to augment the fruit, fodder and fuel resources by use of appropriate alternate land use system; and
(iii) To develop disseminate technologies for the proper soil and moisture conservation methods required under different conditions to achieve the objectives.

The programme will be implemented in un-irrigated arable lands in the country mostly falling in the rainfed range of 500 mm to 1125 mm and also above 1125 mm where crop yields significantly increased and stabilised by dissemination of developed technology for scientific rainfed farming. The programme will run in 16 States which includes Assam and 15 States where pilot projects on water conservation/harvesting technology were in operation.

The Watershed Development Programme for 1989–90 would be taken up on 2.32 lakh ha. area for approved components with existing pattern of assistance. An outlay of Rs. 30 crore (provisional) for 1989–90 is proposed.[57]

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[56] *Ibid.*
[57] *Ibid.*

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Small and Marginal Farmers

Indian agriculture is characterised by vast rainfed areas cultivated predominantly in small holdings through farm and family labour. The small and marginal farmers with a holding of less than 2 hectares represent about 74.5 per cent of the land holding but are cultivating only about 26.3 per cent of the operated area. The number of persons which each ha. of their holding has to sustain is 4–5 times more than the number of persons dependant per hectare of land held by big farmers. Therefore, it is of prime importance both for improvement of the agricultural production and improvement in the quality of life of the rural community that special efforts are made to increase the yield of small and marginal farmers.

At the initiative of the late Prime Minister Smt. Indira Gandhi, the Government of India launched a massive Centrally Sponsored Scheme for "Assisting the Small and Marginal Farmers for Increasing Agricultural Production" in all the 5047 blocks of the country during 1983–84. Considering the popularity and success of the Programme, the scheme is being continued during the Seventh Plan with a financial outlay of Rs. 500.00 crore as Central share. The matching contribution is to be provided by the State Governments. During 1985–86 to 1987–88, a sum of Rs. 205.50 crore has been released. The equal matching contribution was provided by the State Governments. In the case of Union Territories, 100 per cent assistance was provided. The component of these schemes are (i) minor irrigation (ii) distribution of minikits of seeds and (iii) land development.

It is also proposed to extend this scheme of assistance to small and marginal farmers as also to semi-medium farmers for increasing agricultural production during 1989–90 at a cost of Rs. 25.00 crore as Central Share. It is proposed to construct 2,00,000 tubewells/dug wells per year in all the selected States by way of giving incentive to semi-medium farmers to the extent of 20 per cent of the unit cost of the project, as per the norms fixed by NABARD, for different agro-climatic regions in the country subject to a limit of Rs. 2500 per farmer. The scheme is meant for assured supply of irrigation water to boost agricultural production and to achieve the target of 175 million tonnes of foodgrains by 1990.[58]

Intensive Cotton Development Programme

By the end of the Sixth Plan, it was observed that the country had gained self-sufficiency in the production of all categories of cotton. However, after close scrutiny, it was found that there was still deficit of medium and long staple cotton. Therefore, the Centrally Sponsored Intensive Cotton Development Programme was started in the year 1971–72 was modified to increase the production of these categories of cotton.

The target of production for 1989–90 is placed at 95 lakh bales. To achieve

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[58] *Ibid.*

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this target, the Centrally Sponsored Intensive Cotton Development Programme will be continued and the main strategy will be as follows:

(i) Increasing the production of medium and long staple cotton by 6 lakh bales through the distribution of certified seeds, laying out demonstration plots and extending the package of improved practises over larger areas;
(ii) Increasing productivity and improving quality of cotton yield by providing subsidy on plant protection measure such as serial/ground spraying/distribution of plant protection equipments, pesticides and also delinting machine; and
(iii) Increasing the production of exportable types of cotton viz., extra super-long staple to fulfil the export commitments of at least 5 lakh bales. An outlay of Rs. 483.32 lakh (provisional) is fixed for this programme for 1989–90.[59]

Special Jute Development Programme

To increase the productivity and improving the quality of fibre, a Centrally Sponsored Intensive Jute Development Programme (IJDP) was launched in the year 1972–73. The scheme is in operation in the States of Andhra Pradesh, Assam, Bihar, Meghalaya, Orissa, Tripura, Uttar Pradesh and West Bengal. During the Seventh Plan, the major emphasis has been on increasing productivity. From the year 1987–88, a new programme viz., Special Jute Agricultural Development Programme (SJDP) with the objective of increasing the production and improvement of quality of raw jute has been launched. Under SJDP, major emphasis will be laid on the timely supply of certified seeds, implements and plants and plant protection equipments, demonstration of package of practices, farmers training programme on crop production technology, distribution of fungal culture, construction of retting tanks, training on jute grading, etc. The expenditure Finance Committee approved the programme quite late and the administrative sanction was conveyed in October, 1987. The Expenditure Finance Committee while approving the Special Jute Development Programme decided that with the implementation of SJDP, all the activities already undertaken in IJDP will be taken care of by the SJDP. Thus the Centrally Sponsored IJDP was discontinued except for the purpose of maintaining the staff to supervise the activities under SJDP. The expenditure of SJDP will be borne 100 per cent by the Ministry of Textiles.

Under the Centrally Sponsored SJDP, only staff component under IJDP will be continued and the expenditure on the staff component is proposed to be Rs. 20.43 lakh (Central Share) for 1989–90. The physical component of various activities will be undertaken under SJDP and the expenditure of Rs. 886.33 lakhs on fiscal components will be met by the Ministry of Textiles. The target proposed for 1989–90 is 95 lakh bales.[60]

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[59] *Ibid.*
[60] *Ibid.*

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Centrally Sponsored Programme on Reclamation of Alkali Soils in Haryana, Punjab and Uttar Pradesh

With the spread of irrigation from year to year and with the prevailing system of field to field irrigation, supply of water in excess of the requirement of the crop at the particular stage of plant growth has resulted in increasing the level of alkalinity/salinity of irrigated lands in some areas. It is estimated that an area of about 7 million ha. in the country suffer from alkalinity and salinity to such an extent that it renders crop production either impossible or uneconomic. A major part of the alkali soils are found in the States of Haryana, Punjab and Uttar Pradesh.

A Centrally Sponsored Scheme was launched in the States of Haryana, Punjab and Uttar Pradesh during the year 1985–86 to increase the productivity of such lands. The scheme was taken up by the Government of Punjab during 1985–86 while in the States of Haryana and Uttar Pradesh in the year 1986–87.

In the original scheme which was approved by the Cabinet an area of 5.00 lakh ha. was proposed to be reclaimed for agricultural purposes and 2.10 lakh ha. for plantation and pasture development. Now the target for reclamation of alkali soils has been reduced to 1.32 lakh ha. for agricultural purposes only. An amount of Rs. 1015 lakhs has been released to the State Governments since the inception of the scheme.

An area of about 83,505 ha. has been reclaimed so far since the inception of the scheme. Besides 607 pumpsets/bore wells were constructed/installed in Punjab and Uttar Pradesh. It is proposed to reclaim an area of 31,000 ha. during the year 1989–90.[61]

Long-Term Perspective of Agriculture

While India's agriculture has taken massive strides during the five-year plans, its growth and development has not been uniform all over the country. The situation is likely to be difficult by the turn of the century. The total population of the country is expected to be 972 million by 2000 A.D. The gross domestic product is stipulated to rise at 5 per cent per annum over the period 1985–2000. Given these developments, the foodgrains requirements by the year 2000 has been estimated around 240 million tonnes. For achieving the target of foodgrains and other crops, the requirements of fertiliser by 1999–2000 has been estimated at around 20 million tonnes, and that of irrigation around 100 million hectares.

Keeping in view these long-term targets, the position of agriculture in the remaining years of the Seventh Plan, is to be improved. The fulfilment of these targets as well as to construct the base for 2000 A.D., the following important mid-course corrections are required:[62]

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[61] *Ibid.*

[62] *Seventh Five-Year Plan (1985–90), Mid-term Appraisal, op. cit.*, p. 93.

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(i) Irrigation development must be expedited by providing additional funds and by improvements in project planning and implementation. The aim must be to ensure additional utilisation of at least 2 million hectares a year of major, medium and minor irrigation potential.
(ii) Fertiliser use has to be promoted more vigorously particularly in rainfed and dryland areas where, contrary to popular misconception, the returns to fertiliser use are attractive.
(iii) There must be a greater sense of urgency in research on new varieties and the distribution of high yield seeds to farmers.
(iv) Special programmes for rice production in the eastern region, oilseeds development and dryland agriculture on a scale and with the vigour that characterised the green revolution in wheat.
(v) Marketing Infrastructure and Price support operations must be extended to dryland crops particularly pulses and oilseeds.

In the longer term, the basic approach to agricultural planning needs to be re-oriented in the two basic directions:[63]

(i) Agricultural strategies must be designed to work with local agro-climatic features, particularly soil type, climatic including temperature and rainfall and its variation and water resources.
(ii) Agricultural planning must go beyond crop production to include related activities like animal husbandry, fisheries, forestry and agro-industry. The objectives of such planning must be defined not merely in terms of production growth but also in terms of the level and pattern of income generation and employment. The first step towards such an approach was taken in 1987–88 with the decision to undertake such planning exercise for major agro-climatic regions in the country. The real task is to ensure that the insights obtained from this planning exercise are reflected in programmes for irrigation, infrastructure development, agricultural research and extension, input supply, etc.

INTERNATIONAL COOPERATION IN AGRICULTURE

Cooperation in international sphere not only helps in the understanding and proper appreciation of mutual problems but it also contributes a great deal in boosting agricultural production, particularly in areas hitherto unexploited. Accordingly, the central feature of agricultural policy in respect of international cooperation continued to be mutual sharing of expertise in the field of agricultural development, to ensure that untapped potential of the developing world can be harnessed to increase productivity and production. In pursuance

[63] *Ibid.*, pp. 93–94.

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of this policy, special efforts were continued to develop further cooperation and strengthen bilateral relations with both the developed and developing countries.

Food and Agriculture Organisation (FAO)

India is a founder member of FAO and has been taking active part in its activities and those of its organs. During 1987–88 (upto 29.2.1988), India participated in 43 international meetings, conferences, seminars, etc. dealing with various facts of agricultural development. India has been receiving assistance from FAO's Technical Cooperation Programme. During the year 1986–87 and 1987–88, the following projects were approved by the FAO:

	(US $ in lakhs)
1. Strengthening of training programmes in quality control and pre-shipment inspection of food products	1.34
2. Video for rural communication and training	2.43
3. Farm data for agricultural price policy and resource allocation	2.06
4. Wool processing	0.13
5. Market study on mushroom production	0.10
6. Assistance to aerial seeding programme	0.95
7. Production of soya foods	0.60
8. Egg and poultry marketing	0.45
9. Training in agricultural project planning and implementation	1.70
10. Preparatory assistance for oilseeds development	0.28

European Economic Community (EEC)

The European Economic Community has been providing assistance to India in the form of grants for 'Operation Flood' Construction of flood and cyclone shelters, construction of cooperative storages, soyabean development, afforestation, soil conservation and fish farming.

EEC is giving Food Aid to India in the form of butter, butter oil, skimmed milk powder, etc. The Operation Flood-III is at present the biggest project in India financed by the EEC Food Aid. The total cost of the project is about Rs. 915 crore, out of which the World Bank's contribution is about Rs. 486 crore (US $ 360 million) and the EEC contribution is about Rs. 222.7 crore. The balance is to be financed by the National Dairy Development Board (NDDB)'s own resources. The project is upto 1994.

At present the following on-going projects with EEC assistance are being implemented:

(i) Integrated Watershed Management in Gujarat.
(ii) Trout Fish Farming Project in J&K.
(iii) Cyclone Shelters Projects.

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(iv) Mustard Seed Development Project in Rajasthan.
(v) Bihar Cooperative Storage Project.
(vi) Coconut Development Project in Kerala.
(vii) Sheep Development Project in Tamil Nadu.
(viii) Integrated Watershed Management in Chambal Area, U.P.

Besides, several projects in the areas of fisheries, Training of Women in Agriculture, Horticulture, Watershed Management have been posed. EEC has also included the Project "Rinderpest Eradication Campaign" in India, for financing in their 1988 aid programme with tentative allocation of ECU 30 million.

EEC has supplied sunflower seeds for field trials in India and also technical expertise in this area.[64]

United Nations Development Programme (UNDP)

The United Nations Development Programme (UNDP) continued to provide technical assistance in the form of foreign experts, consultants, fellowships and equipments, etc. At present one UNDP Country Project, namely, Development of Coastal Aquaculture is under implementation which has since been extended upto March, 1990 for development of brackishwater aquaculture in India. The project has envisaged completion of one pilot shrimp hatchery in the first instance. Out of the provision to train 22 persons under the project, 10 persons have already been trained during 1987–88. The UNDP input is US $ 838, 832.

UNDP have also agreed to extend the technical assistance to the 'Development and Demonstration of Bio-fertilisers' project as soon as the project is in readiness to start receiving FAO/UNDP assistance.[65]

Besides, there are two UNDP regional projects under operation, namely Himalayan Pasture and Fodder Research Project and Buffalo Development Project.

Agreement has also been concluded between the Government of India for extending the financial support to the two more regional projects, viz., Regional Seafarming Development and Demonstration Project and Coordination Rinderspest Eradication Campaign in South Asia.

World Bank and its Affiliates

The International Bank for Reconstruction & Development (IBRD) and its affiliate the International Development Association (IDA) have been supporting Indian economic development including the development of agriculture in accordance with the country's plan priorities and goals. In the agricultural sector, the World Bank's support has been notable in agricultural extension, social forestry, agricultural credit, dairy development, horticulture seed development rainfed farming fisheries, storage and marketing and irrigation. During

[64] Information received from the Ministry of Agriculture in March 1989.
[65] *Ibid.*

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the year 1986–87 two projects in the agricultural sector were negotiated for the World Bank's assistance. They are the NABARD-I (assistance $ 375 million) and the National Agricultural Extension Project-III (assistance $ 85 million)- NABARD-I with World Bank assistance of US $ 375 million became effective during July, 1986. Third National Agricultural Extension Project (NAEP-III) and National Dairy-II (OF-III) project also became effective during January, 1988 and April, 1988 respectively. The National Seed Project-III was negotiated in May, 1988 and is expected to be effective shortly.[66]

At present, there are 12 on-going World Bank/IDA assisted agricultural projects concerning the Department of Agriculture & Cooperation. In addition, 12 agricultural projects covering the subsectors of Horticulture, Livestock, Fisheries, Watershed and Seed are in the pipeline seeking for World Bank/other external assistance.

There is one on-going International Fund for Agricultural Development (IFAD) assisted Sunderban Development Project currently operating in West Bengal.

World Food Programme (WFP)

The World Food Programme, an organisation set up jointly by UN/FAO in 1963, has been providing commodity assistance to the member countries for development projects as also for taking up nutritional feeding programmes and meeting emergency relief operations. The Government of India's pledged contribution for the biennium 1989–90 is US $ 1.85 million. The total WFP food aid committed to India from 1963 is valued at US $ 723 million for the implementation of 61 development and nutrition and feeding projects and 13 emergency relief operations.[67]

During the period 1987–88, the Government of India and WFP signed new documents for provision of food aid to the following projects:

(i) 2750 Pilot Project for Inland Fisheries Development in Assam;
(ii) 2774 Forestry and Tribal Development in Kerala;
(iii) 2783 Forestry Development in Tribal Districts of Gujarat.

49,513 MT of wheat/rice, 4,138 MT of vegetable oil, and 4,952 MT of pulses, valuing about US $ 21.5 million, were committed to these three projects.[68]

Bilateral Relations

India has fruitful bilateral relations in the field of agriculture with a number of developed and developing countries. The developed countries are Australia, Denmark, Federal Republic of Germany, France, Italy, Japan, The Netherlands,

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[66] *Ibid.*
[67] *Ibid.*
[68] Government of India, Ministry of Agriculture: *Annual Report (1987–88) of Department of Agriculture and Cooperation*, New Delhi, 1988, p. 173.

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Norway, Spain, Sweden, Switzerland, The UK, The USA and The USSR. The developing countries include Argentina, Bulgaria, Iran, Iraq, Libya, Malaysia, Mauritius, Mexico, Nepal, Nigeria, Romania, Saudi Arabia, Tanzania and Zambia, etc.

The fifth meeting of the Indo-US Sub-Commission on Agriculture was held in New Delhi from 7–11 December, 1987. The sub-commission recognised the need to identify new projects for implementation to increase bilateral cooperation. It was agreed that distinct and identifiable projects in arid zone agriculture, water management, and evaluation of ground water resources may be developed as a symbol of Indo-US Cooperation in agriculture.

The other priority areas identified included drought proofing, agro-meteorology, bio-technology, plant genetic resources, oilseeds, horticulture and aquaculture.

A Long-Term Programme of Cooperation (LTP) with the USSR in the field of agriculture upto the year 2000 AD was signed in February, 1987. The implementation of the LTP was reviewed by the Indo-Soviet Joint Commission held in Moscow in June, 1987. The Joint Commission appointed a Working Group on Agriculture to monitor the progress. The first meeting of the Working Group was held in Moscow in December, 1987 when a number of areas of cooperation were identified. Based on these discussions, an Action Plan has been drawn up. The Action Plan has identified and envisaged cooperation in areas like production of soyabean oil by extraction, manufacture of furfural and citric acid, manufacture of ethylalcohol, fruits and vegetables processing, establishment of modern abattoirs and processing of meat for export.[69]

World Bank Assisted Project

World Bank is currently assisting ten Agricultural Development Projects in the country in different sub-sectors. These are in different stages of implementation. The total cost of these projects is US $ 6,975 million of which World Bank's loans/credit assistance is of the order of US $ 1249.3 million.

Assistance is also being rendered by the International Fund for Agricultural Development (IFAD). In the field of agriculture there is only one project namely, Sunderban Development Project, which is being implemented in West Bengal with IFAD assistance. The credit assistance is of the order of US $ 17.5 million. The project is expected to end by June, 1989 and the second phase of this project is under consideration.[70]

PARLIAMENTARY COMMITTEE ON AGRICULTURE

In pursuance of amendments to sub-rule (3) of rule 331 of the Rules of Procedure and Conduct of Business in Lok Sabha effected on 9 May, 1989 by

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[69] Information received from the Ministry of Agriculture in March 1989.
[70] *Ibid.*

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the Rules Committee, the Lok Sabha has approved the setting up of a Committee on Agriculture to examine all matters connected with agriculture as are dealt with by the Ministry of Agriculture and allied Ministries and to report thereon from time to time. The functions of the Committee are:

(a) to examine much of the activities of the Ministry of Agriculture and allied Ministries as may seem fit to the Committee;
(b) to report what economies, improvements in organisation, efficiency or administrative reform consistent with the policy approved by Parliament, may be effected;
(c) to examine the Annual Reports of the Ministry of Agriculture and allied Ministries with a view to finding out whether the expenditure incurred was commensurate with the results achieved;
(d) to examine such of the plant projects/activities of the Ministry of Agriculture and allied Ministries as may seem fit to the Committee or are specially referred to it by the House or the Speaker; and
(e) to evaluate and suggest measures for modernisation and overall development of agriculture and agricultural industries with a view to enhancing their contribution to economic growth through supplies of food, raw materials and products for exports, etc.

The Committee is to consist of not more than 22 members—15 of them to be nominated by the Speaker every year from amongst the members of Lok Sabha and not more than 7 members of Rajya Sabha to be nominated by the Chairman, Rajya Sabha for being associated with the Committee. The term of office of the members of the Committee is one year.

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APPENDIX 1.1

Targets of Production of Foodgrains and Achievements during Various Plans

Items Plan	*Foodgrains (Million tonnes)*	
	Targets	*Achievements*
1. First Plan (1951–56)	62.60	66.85 (1955–56)
2. Second Plan (1956–61)	76.20	82.02 (1960–61)
3. Third Plan (1961–66)	101.60	72.35 (1965–66)
4. Annual Plan	—	94.01 (1968–69)
5. Fourth Plan (1969–74)	129.00	104.67 (1973–74)
6. Fifth Plan (1974–79)	132.90	131.90 (1978–79)
7. Sixth Plan (1980–85)	153.60	145.54 (1984–85)
8. Seventh Plan (1985–90)	174.0–176.0	—

SOURCE: Government of India, Ministry of Planning: *Statistical Pocket Book (1983)*, New Delhi, 1984, pp. 214–216 and *Statistical Pocket Book—India (1985)*, New Delhi, 1986, p. 218.

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APPENDIX 1.2

Agricultural Production

Production of Major Crops

(In million units)

Commodity	*Units*	*1970–71*	*1975–76*	*1980–81*	*1981–82*	*1982–83*	*1983–84*	*1984–85*	*1985–86*	*1986–87*
1	2	3	4	5	6	7	8	9	10	11
Kharif Foodgrains	Tonnes	68.92	73.89	77.65	79.38	69.90	89.23	84.52	85.24	81.53
Rabi Foodgrains	Tonnes	39.51	47.15	51.94	53.92	59.62	63.14	61.02	65.19	62.54
Total Foodgrains	Tonnes	108.42	121.03	129.59	133.30	129.52	152.37	145.54	150.43	144.07
Kharif Cereals	Tonnes	65.04	69.45	73.89	75.05	65.77	83.86	79.75	80.70	77.24
Rabi Cereals	Tonnes	31.56	38.54	45.08	46.74	51.89	55.62	53.83	56.37	55.09
Total Cereals	Tonnes	96.60	107.99	118.96	121.79	117.66	139.48	133.58	137.07	132.33
Kharif Pulses	Tonnes	3.88	4.44	3.76	4.33	4.13	5.37	4.77	4.54	4.29
Rabi Pulses	Tonnes	7.94	8.60	6.87	7.18	7.73	7.52	7.19	8.82	7.45
Total Pulses	Tonnes	11.82	13.04	10.63	11.51	11.86	12.89	11.96	13.36	11.74
Rice (Kharif)	Tonnes	39.56	44.74	50.09	49.24	43.17	55.05	53.78	59.39	55.10
Rice (Rabi)	Tonnes	2.67	4.00	3.54	4.01	3.95	5.05	4.56	4.43	5.32
Rice (Total)	Tonnes	42.23	48.74	53.63	53.25	47.12	60.10	58.34	63.82	60.42
Wheat	Tonnes	23.83	28.85	36.31	37.45	42.79	45.48	44.07	47.05	45.57
Jowar (Kharif)	Tonnes	5.82	6.99	7.50	8.77	7.47	8.66	7.75	7.27	6.40
Jowar (Rabi)	Tonnes	2.29	2.51	2.93	3.29	3.28	3.26	3.65	2.93	2.47
Jowar (Total)	Tonnes	8.11	9.50	10.43	12.06	10.75	11.92	11.40	10.20	8.87
Maize	Tonnes	7.49	7.26	6.96	6.90	6.55	7.92	8.44	6.64	7.46
Bajra	Tonnes	8.03	5.74	5.34	5.54	5.13	7.72	6.05	3.66	4.49
Gram	Tonnes	5.20	5.88	4.33	4.64	5.29	4.75	4.56	5.79	4.46

APPENDIX 1.2 *Contd.*

1	2	3	4	5	6	7	8	9	10	11
Tur	Tonnes	1.88	2.10	1.96	2.24	1.99	2.58	2.58	2.44	2.32
Kharif Oilseeds	Tonnes	7.01	7.12	5.00	7.04	5.39	7.21	7.05	5.95	6.60
Rabi Oilseeds	Tonnes	2.62	3.49	4.37	5.04	4.61	5.48	5.90	4.88	4.85
Total Oilseeds**	Tonnes	9.63	10.61	9.37	12.08	10.00	12.69	12.95	10.83	11.45
Groundnut (Kharif)	Tonnes	N.A.	6.10	3.71	5.52	3.74	5.28	4.69	3.76	4.69
Ground (Rabi)	Tonnes	N.A.	0.65	1.29	1.70	1.54	1.81	1.74	1.36	1.37
Groundnut (Total)	Tonnes	6.11	6.75	5.01	7.22	5.28	7.09	6.43	5.12	6.06
Rapeseed & Mustard	Tonnes	1.98	1.94	2.30	2.38	2.21	2.61	3.07	2.68	2.63
Sugarcane	Tonnes	126.37	140.60	154.25	186.36	189.51	174.08	170.32	170.65	182.48
Cotton	Bales@	4.76	5.95	7.01	7.88	7.53	6.39	8.51	8.73	7.01
Jute & Mesta	Bales†	6.19	5.91	8.16	8.37	7.17	7.72	7.79	12.65	8.63
Jute	Bales†	4.94	4.44	6.51	6.79	5.95	6.32	6.53	10.89	7.36
Mesta	Bales†	1.25	1.47	1.65	1.58	1.22	1.40	1.26	1.76	1.27
Potato	Tonnes	4.81	7.31	9.67	9.91	9.96	12.15	12.57	10.42	12.73

* Final estimates
** Include groundnuts, rapeseed and mustard, sesamum, linseed, castorseed, nigerseed, safflower, sunflower and soyabean.
@ Bale — 170 kg
† Bale — 180 kg

SOURCE: Government of India, Ministry of Finance: *Economy Survey (1987–88)*: New Delhi, (1988), pp. 5–15.

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APPENDIX 1.3

Seventh Five-Year Plan Outlays—Agriculture and Allied Programmes

(Rs. in crores)

Head of Development	*Centre*	*State*	*UTs*	*Total*
1. Research and Education	425.00	277.17	2.43	704.60
2. Crop Husbandry	1305.00	1948.44	58.36	3311.80
3. Soil & Water Conservation	110.00	597.30	33.09	740.39
4. Animal Husbandry	95.00	434.94	41.04	570.98
5. Dairy Development	315.00	187.70	3.00	505.70
(4) + (5)	410.00	622.64	44.04	1076.68
6. Fisheries	170.00	305.42	23.77	499.19
7. Forestry & Wild Life	446.71	1340.08	72.31	1859.10
8. Investment in Agricultural Financial Institutions	195.00	158.56	0.10	353.66
9. Agricultural marketing and rural godowns	60.00	86.44	3.00	149.44
10. Storage, Warehousing & Food Processing	275.00	31.07	1.01	307.08
11. Disaster Management	10.00	11.10	—	21.10
12. Cooperation	500.00	870.18	30.40	1400.58
13. Plantations	150.00	—	—	150.00
Total	4056.71	6248.40	268.51	10573.62

SOURCE: Government of India, Planning Commission: *The Seventh Five-Year Plan (1985–90), Vol-II*, New Delhi, 1985, p. 109.

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APPENDIX 1.4

Proposed Outlay as also Expenditure on Central and Centrally sponsored Schemes

Head of Development	*Seventh Plan Outlay*	*1985–86 Actual Exp.*	*1986–87 Actual Exp.*	*1987–88 Actual Exp.*
1. Agricultural Extension & Training	25.00	1.17	2.43	4.03
2. Agricultural Statistics	46.00	5.65	7.61	12.68
3. Seed Development	71.00	5.42	5.14	19.83
4. Fertiliser & Manures	44.00	0.21	0.85	0.46
5. Plant Protection	24.00	4.37	5.30	4.75
6. Agricultural Implements & Machinery	13.02	1.80	1.77	1.73
7. Crop Oriented Programmes	909.00	134.04	109.41	141.32
8. Horticulture	33.00	3.65	3.21	4.49
9. Soil & Water Conservation	207.98	36.28	35.42	50.12
10. Fisheries	217.35@	23.37	57.35	45.85
11. Animal Husbandry	165.19	12.92	13.75	18.14
12. Dairy Development	302.75	82.72	59.19	73.18
13. Credit	173.60	29.51	35.20	35.72
14. Crop Insurance	75.00	15.80	73.85	59.95
15. Cooperation	343.00	45.22	51.88	75.50
16. Management of Natural Disasters	10.00	—	57.00	—
17. Secretariat Economic Service	*	0.35	0.48	0.53

* — Provision included under the concerned heads of Development.
@ — Includes an amount of Rs. 118.25 crore transferred to Ministry of Food Processing.

SOURCE: Government of India, Ministry of Agriculture: *Annual Report (1978–88) Department of Agriculture and Cooperation,* New Delhi, 1988, pp. 193–194.

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APPENDIX 1.5

New Twenty-Point Programme

Agriculture has been given pride of place in the Twenty Point Programme. The Twenty Point Programme which was introduced in 1975 has undergone certain modifications. The latest version of the Twenty Point Programme, 1986 (announced in August, 1986) lays emphasis on accelerated development of key areas in the agriculture sector. The Department of Agriculture & Cooperation is concerned with the following two items of the Twenty Point Programme, 1986:

Point No. 2: Strategy for Rainfed Agriculture
Point No. 4: Bigger Harvests

Point No. 2 emphasises development of rainfed agriculture through a three-pronged strategy consisting of improvement of moisture conservation technology, development and distribution of improved seeds and drought-proofing and drought relief measures. Point No. 4, in the Twenty Point Programme deals with bigger harvests. Here again the strategy has seven elements, namely:

(i) Boost rice production in the eastern region.
(ii) Achieve self-reliance in edible oils.
(iii) Secure greater production of pulses.
(iv) Intensify cultivation of fruits and vegetables.
(v) Augment facilities for modern storage, processing and marketing of agricultural produce.
(vi) Achieve higher productivity in livestock and dairy sector.
(vii) Develop dairy and fisheries sectors.

Bigger Harvests

Increasing the production and productivity of rice specially in Eastern Region is one of the major development objectives of the Seventh Five-Year Plan. A Special Rice Production Programme is in operation in selected Blocks in the six eastern States of Assam, Bihar, Madhya Pradesh, Orissa, Uttar Pradesh and West Bengal. The policies and programmes initiated by the Government of India started yielding results.

Production of pulses and oilseeds has been increasing steadily since 1980–81. Production of pulses increased from 106 lakh tonnes in 1980–81 to 134 lakh tonnes in 1985–86. The production of pulses during 1986–87 declined to 117 lakh tonnes due to unfavourable weather conditions.

Oilseeds production increased steadily from 93.7 lakh tonnes in 1980–81 to a record level of 129.5 lakh tonnes in 1984–85. However, during 1985–86 the oilseeds production suffered a set-back due to drought conditions and declined to 108.3 lakh tonnes. In 1986–87 the oilseeds production estimated at 114.5 lakh tonnes was slightly higher as compared to 1985–86.

In regard to production of milk, eggs, wool and fish, there has been a steady

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increase in the production of these items which are included as components under Point No. 4 relating to Bigger Harvests. The estimated production of milk during 1986–87 was 44 million tonnes. During the same period egg production was estimated at 17 billion number. Wool production 42.3 million kgs. and fish production at 29.4 lakh tonnes.

Highlights of the Progress Achieved in Rainfed Farming

In 1987–88, rainfed-farming programme received further impetus. Already 15,467 micro-watersheds were taken up (upto March, 1988) for development against the targets of 15,048 micro-watersheds during the year. Andhra Pradesh, Gujarat, Jammu & Kashmir, Kerala, Madhya Pradesh and Tamil Nadu have not taken up any additional watersheds for development during the year. However, the States such as Bihar, Haryana, Karnataka, Maharashtra, Rajasthan, Tripura and Uttar Pradesh started development work in a larger number of watersheds. Besides the development of watersheds, efforts were taken to propagate dryland farming practices in areas outside the watersheds. In respect of such areas, a target of 144.54 lakh ha under the dryland farming technology was fixed for 1987–88. Against this, an area of 107.10 lakh ha was already brought under dryland farming practices upto March, 1988.

The major components of the watersheds development are (i) land development; (ii) distribution of seed-cum-fertiliser drills; (iii) distribution of improved agricultural implements; and (iv) distribution of high yielding seeds. The land development work was taken up in an area of 6.13 lakh ha. up to March 1988 against the target of 5.41 lakh ha. during the year. The targets for distribution of seed-cum-fertiliser drills and distribution of agricultural implements were fixed at 15,965 and 2,33,400 respectively. As against these targets, the States reported up to March, 1988, distribution of 15,118 drills and 2,13,584 implements.

The target for distribution of high-yielding seeds was fixed at 49,91,990 quintals against which the achievement was 29,10,376 quintals upto March, 1988. Due to unprecedented drought condition prevailing in the country during Kharif, 1987, the achievements had been lagging behind in respect of distribution of seed-cum-fertiliser drills, distribution of improved agricultural implements, distribution of high-yielding seeds and area covered outside the selected watersheds with dry farming practices.

SOURCE: Government of India, Ministry of Agriculture: *Annual Report (1987–88) of Department of Agriculture and Cooperation*, New Delhi, 1988, pp. 177–180.

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2

NATIONAL EDUCATION POLICY

INTRODUCTION

In the present day world, it is education that determines the level of prosperity and welfare of the people. Education and research are crucial to the entire developmental process of a country. This is more so in a developing country like India, where the need for an educational policy containing a built-in flexibility adjustable to the changing circumstances is imperative. On the quality and number of persons coming out of schools and colleges will depend our success in the great enterprise of national reconstruction whose principal objective is to raise the standard of living of the people. Further, if the pace of national development is to be accelerated there is need for a well defined, bold and imaginative educational policy.

The origin of the system of education prevalent in the country today can be traced to the beginning of the nineteenth century. Thereafter, a number of Committees and Commissions were appointed from time to time by the Government in the pre-Independence period to suggest appropriate changes in regard to the educational policy in view of the political and social changes taking place in the country. Education, however, acquired a new significance after Independence and both the planner and the administrator have felt the need for a national system of education suited to the needs and aspirations of a free and modern society.

CONSTITUTIONAL PROVISIONS

Under the Constitution as originally enacted, education was primarily a State subject. The relevant entry (Entry 11) in the State List read "Education including universities subject to the provisions of entries 63, 64, 65 and 66 of List I and entry 25 of List III." Thus education was exclusively a responsibility of the States, the Union Government being concerned directly with certain areas like coordination, determination of standards in technical and higher education, etc. In 1976, by a constitutional amendment, education became the joint responsibility of the Union and State Governments. The Constitution (Forty-second Amendment) Act, omitted Entry 11 from the States List and amplified Entry 25 in the Concurrent List. Entry 25 of the Concurrent List which, as so amplified, now reads:

42nd

25. Education, including technical education, medical education and universities,

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subject to the provisions of entries 63, 64, 65 and 66 of List I; vocational and technical training of labour.

The implication of this amendment is that education has become a Concurrent Subject which enables the Union Government to legislate in such fields as, for example, school education.

Apart from this concurrent sphere, the Constitution places certain educational matters within the exclusive jurisdiction of the Union. These are: maintenance of Central Universities and institutions of national importance, declared as such by Parliament by law; all Union agencies and institutions for professional, vocational or technical training or for promotion of special studies or research; and the coordination and determination of standard in institutions of higher education or research and scientific and technical institutions (Entries 63, 64, 65 and 66 of List I).

Article 28 provides that no religious instruction shall be provided in any educational institution wholly maintained out of State funds. Article 29 further provides that no citizen shall be denied admission into any educational institution maintained by the State or receiving aid out of State funds, on grounds only of religion, race, caste, language or any of them. According to Article 30, all minorities, whether based on religion or language, shall have the right to establish and administer educational institutions of their choice. In addition, the State shall not, in granting aid to educational institutions discriminate against any educational institution on the ground that it is under the management of a minority, whether based on religion or language.

Besides, some of the Directive Principles, set out in Part IV of the Constitution, also have a bearing on national educational policy. For instance, Article 45 enjoins that the 'State' shall endeavour to provide for free and compulsory education for all children until they complete the age of fourteen years.

Article 46 requires the 'State' to promote with special care the educational interests of the weaker sections of the people, which include, in particular, the Scheduled Castes and Scheduled Tribes.

Article 350A places a special responsibility on the Government to safeguard the interests of the children belonging to linguistic minority groups and to see that they have adequate facilities to receive at least primary education through their own mother tongue. Article 351 further places a special responsibility on the Government of India for promoting the spread of Hindi language and for its development so that it may serve as a medium of expression for all the elements of the composite culture of India.

Yet another provision in the Constitution which has an indirect but significant bearing upon the role of the Government of India in education is Entry 20 of List III, which is concerned with "Economic and Social Planning". Educational Planning being an essential element of economic and social planning the Government of India and the State Governments have to work together in preparing and implementing the national plans for the reconstruction of education.

The Government of India are also responsible under the Constitution for the

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administration of the Union Territories and have for this purpose executive and legislative authority for all subjects including education.

EVOLUTION OF POLICY

It will be seen that the Constitution of independent India made new demands on the education system of the country. Broadly speaking, the first and the foremost educational demand was that of universal elementary education. Another important demand was to provide equal opportunity to all the people emanating from India's decision to become a democratic republic.

Thus, a major task before the country was to reorient the system of education so as to adjust it to the changing needs and aspirations of the people. Consequently, the post-Independence period was marked by the examination of our education system by several commissions and committees.

The most notable among them were three: (i) the University Education Commission (1948–49)[1] appointed to report on Indian University Education and suggest improvements and changes to suit present and future requirements of the country; (ii) the Secondary Education Commission (1952)[2] set up to examine the prevailing system of secondary education in the country and suggest measures for its reorganisation and improvement; and (iii) the Education Commission (1964–66).

The question of evolving a national policy on education in its various aspects had come up before the Parliament time and again and the members had evinced keen interest in the subject. Moving a resolution[3] in Lok Sabha on May 1, 1964 on 'National Policy on Education', a private member, Shri Siddheshwar Prasad, charged the Government with not having paid the attention to education that it deserved.

He said that education policy of the Government lacked clarity, a definite

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[1] The University Education Commission: wanted Indian higher education to be built on the foundations of Indian history and philosophy and so commended the right balance between the life material and the life spiritual in its content; emphasised the need for quality teachers and new methods such as tutorial system; made recommendations in respect of examination reforms; advocated the mother tongue as medium of instruction; emphasised the need for moral and religious education; expressed concern over the deteriorating standards and recommended raising of the college age, implying an eleven year schooling followed by a three year degree course; and pleaded for better admission procedures and recruitment of teachers based on merit.

[2] The Secondary Education Commission: defined the scope of secondary education and recommended to make it a terminal stage, as well as a preparation for higher education; recommended the addition of a practical bias as to the study of theoretical courses; argued for the mother tongue as the medium of instruction in the entire school stage; recommended dynamic methods of teaching; advocated for the introduction of moral and religious education with a view to character building; emphasised the need for guidance services in education; and suggested measures to reform the system of examination.

[3] "This House is of opinion that a Committee of Members of Parliament be appointed to go into the question of National Policy on Education in all its aspects and to prepare a plan accordingly for the next three plan periods, and also to suggest suitable machinery for its implementation." (L. S. Deb. May 1, 1964, c., 13989.)

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philosophy and uniformity. He desired a Committee comprising members of Parliament be set up to go into the question of a national policy on education in all its aspects. The idea for formulating a national policy on education was also supported by other members.

Intervening in the debate, the then Minister of Education (Shri M. C. Chagla) agreed that there should be a national and coordinated policy on education. He announced that the Government had decided to appoint a National Commission comprising outstanding educationists to go into all the aspects of education in the country. As such, in his view, a Committee of members of Parliament would serve no purpose. He requested the member to withdraw the resolution which was, by leave of the House, withdrawn.[4]

EDUCATION COMMISSION (1964–66)*

The Education Commission under the Chairmanship of Dr. D. S. Kothari, the then Chairman, University Grants Commission, began its task on October 2, 1964. It consisted of sixteen members, eleven being Indians and five foreign experts. In addition, the Commission had the benefit of discussion with a number of internationally known consultants in the educational as well as scientific fields.

The main task of the Commission was to advise the Government on the national pattern of education and on the general policies for the development of education at all stages—ranging from the primary to post-graduate stage and in all its aspects besides examining a host of educational problems in their social and economic context.[5]

The Commission submitted its report to the Government on June 29, 1966. It was laid on the Table of the House on August 29, 1966. The main features of the Commission's report were as follows:

(i) Introduction of work-experience which includes manual work, production experience, etc. and social service as integral part of general education at more or less all levels of education.

(ii) Stress on moral education and inculcation of a sense of social responsibility. Schools should recognise their responsibility in facilitating the transition of youth from the world of school to the world of work and life.

(iii) Vocationalisation of secondary education.

(iv) Strengthening of the centres of advanced study and setting up of a small number of major universities which would aim at achieving highest international standards.

(v) Special emphasis on the training and quality of teachers for schools.

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* For principal recommendations of the Commission please see Appendix 2.1.

[4] L. S. Deb., June 5, 1964, cc. 1441–49.

[5] Government Resolution setting up the Educations Commission, July 14, 1964.

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(vi) Education for agriculture and research in agriculture and allied sciences should be given a high priority in the scheme of educational reconstruction. Energetic and imaginative steps are required to draw a reasonable proportion of talent to go in for advanced study and research in agricultural science.

(vii) Development of quality or pace-setting institutions at all stages and in all sectors.

The Commission observed that mother-tongue had a pre-eminent claim as the medium of education at the school and college stages. Moreover, the medium of education in school and higher education should generally be the same. The regional languages should, therefore, be adopted as the media of education in higher education.

The Commission further observed that the public demand for secondary and higher education had increased and would continue to increase in future. It was, therefore, necessary to adopt a policy of selective admissions to higher secondary and university education in order to bridge the gap between the public demand and available facilities.

The Commission was of the view that the social segregation in schools should be eliminated by the adoption of the neighbourhood school concept at the lower primary stage under which all children in the neighbourhood will be required to attend the school in the locality.

NATIONAL POLICY ON EDUCATION: COMMITTEE OF MEMBERS OF PARLIAMENT

A Committee of Members of Parliament on Education was constituted by the Government of India on April 5, 1967, with the following terms of reference:

(i) to consider the report of the Education Commission;
(ii) to prepare the draft of a statement on the National Policy on Education for the consideration of Government of India; and
(iii) to identify the programme for immediate action.

The Committee scrutinised only the major recommendations of the Education Commission along with the comments of the State Governments and others thereon.

The Committee's general approach to the problem differed from that of the Commission in three important ways. First, the Committee did not accept the recommendations of the Commission for the creation of five or six 'major' universities or for upgrading 10 per cent of the institutions at all levels to optimum standards. The Committee believed that better results could be obtained if efforts were made to maintain at least the minimum standards in all institutions and special additional assistance was offered, on the basis of proper criteria, to those institutions which showed high level of performance and promise. Secondly, they placed a greater emphasis on expansion of facilities

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than the Commission had done, especially at the school stage. The Committee, therefore, did not agree with the Commission's proposal that a system of selective admission should be adopted at the higher secondary and undergraduate stages. They suggested methods for diverting a large proportion of students into different walks of life at the end of the higher secondary stage which would necessarily reduce pressure on access to higher education. The Committee further desired that every effort should be made to provide admission to institutions of higher education to all eligible students who desired to study further. Thirdly, the Committee did not favour several recommendations of the Commission whose main objective was to create certain new administrative structure or changes in the existing ones. In the opinion of the Committee, such programmes would lead to increasing bureaucratisation and increase in unproductive expenditure.

Subject to the above observations, the Committee accepted several of the major recommendations of the Commission, some with modifications or changes in priority. They also added new recommendations in certain areas where the ground was not fully covered by the report of the Commission. The report of the Committee of Members of Parliament was laid on the Table of the Lok Sabha on July 25, 1967.[6]

The salient recommendations of the Committee were:

(i) The unhealthy social segregation that now takes place between the schools for the rich and those for the poor should be ended; and the primary schools should be made the common schools of the nation by making it obligatory on all children, irrespective of caste, creed, community, religion, economic condition or social status, to attend the primary school in their neighbourhood.

(ii) The development of a proper language policy can greatly assist in strengthening national unity. The key programme will be to develop all Indian languages and to adopt them as media of education at all stages.

(iii) At the secondary stage (Classes VI–X) the regional language should ordinarily be the medium of education. Adequate safeguards should be provided for linguistic minorities. In Classes XI–XII, a pupil should study at least one language of his choice in addition to the medium of education. While facilities to study languages, on an optional basis, should be adequately provided at the university-level, the study of no language should be made compulsory unless such study is an essential part of the prescribed course.

(iv) Hindi is already largely in use as a link language. The educational system should contribute to the acceleration of this progress in order to facilitate the movement of students and teachers and to strengthen national unity.

[6] Government of India, Ministry of Education: Report of the Committee of Members of Parliament, 1967, pp. iii–iv.

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(v) Science education and research should be developed on a priority basis. Great emphasis should be placed on the development of education for agriculture and industry. In technical education, programmes of qualitative improvement should be stressed.

(vi) Work experience should be an integral part of general education at the school stage. Work with hands will help the young to develop insights into productive processes and the use of science, and inculcate in them respect for manual labour and habits of hard and responsible work.

(vii) The provision of food and effective primary education on a free and compulsory basis is the foundation of democracy and national development. It should be given the highest priority.

(viii) There should be a broadly uniform educational structure in all parts of the country. The first step is to create the Ten Year School providing a common pattern of general education for all children. The national policy should be to ultimately make this period of ten years free and compulsory for all children. The next stage, the higher secondary, should be uniformly raised to two years in all parts of the country under a phased programme. The duration of the courses for the first degree in arts, commerce and science should be three years after the higher secondary stage.

(ix) Plans to accelerate the spread of literacy should be prepared and intensively implemented.

(x) Educational expansion should be accompanied by simultaneous efforts to raise substantially the standard of education and to keep them continuously rising.

(xi) There is an urgent need to upgrade and improve school curricula, to increase their knowledge content and to provide adequately for the development of skills, and the inculcation of right interests, attitudes and values. Similar steps are also needed at the university stage.

(xii) Regarding examination reform, attention should be concentrated on three major areas: reduction of the dominance of external examination; introduction of reforms which would make them more valid and realistic; and the adoption of a good system of internal evaluation.

The then Union Minister of Education (Dr. Triguna Sen), on November 14, 1967, moved a Government Motion for discussion in Lok Sabha of the report of the Education Commission and the report of the Committee of Members of Parliament.[7] Participating in the discussion, members stressed that the natural talent of the student could be unfolded only through his mother-tongue which had been recognised by the Commission. The concept of the neighbourhood schools was also welcomed by some members. The emphasis laid by the

[7] "That this House takes note of the report of the Education Commission 1964–66 laid on the Table of the House on August 29, 1966 and that this House takes note of the report of the Committee of Members of Parliament on Education (1967)—National Policy on Education laid on the Table of the House on July 25, 1967 (L. S. Deb., November 14, 1967, c. 462–92).

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Commission on work experience and compulsory service scheme was also commended. They considered it advisable that in the case of primary and secondary education, the medium should be regional language all over the country. Members suggested that higher education should also be imparted through the regional language. For raising the quality of education, they pleaded for improving the quality of teachers. Promising people, they felt, would be attracted to the profession if the emoluments and the status of teachers were raised.

Replying to the discussion in the Lok Sabha on December 6, 1967, the Minister said that one of the major recommendations of the Education Commission was that the Government should issue a statement on the national policy on education which should provide guidance to the State Governments and local authorities in preparing and implementing educational plans in their areas. He informed the House that the Government had decided to give the widest possible opportunity to all concerned to express their views and opinions and after examining them critically to issue a comprehensive statement on the 'National Policy on Education'.[8]

RESOLUTION ON NATIONAL POLICY ON EDUCATION

As a result of discussions on the recommendations of the Education Commission and the report of the Committee of Members of Parliament, a Resolution on National Policy on Education was formally issued by the Government of India on July 24, 1968.*

The Resolution enumerated seventeen principles to guide the development of education in the years ahead. These were:

(i) Free and Compulsory Education

Free and compulsory education for all children up to the age of 14 should be provided by the earliest possible date and suitable programme should be developed to reduce the prevailing wastage and stagnation in schools.

(ii) Status, Emoluments and Education of Teachers

Teacher education, particularly in-service education, should receive high priority. Teachers must be accorded an honoured place in society, their emoluments, and other service conditions should be adequate, and their academic freedom should be guaranteed.

(iii) Development of Languages

The energetic development of Indian languages and literature is a *sine qua non* for education and cultural development. Unless this is done, the creative

[8] L. S. Deb., December 6, 1967, cc. 5165–5180.

* For text of Resolution please see Appendix 2.2.

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energies of the people would not be released; standards of education will not improve; knowledge will not be spread to the people and the gulf between the intelligentsia and the masses will remain, if not widen further. The regional language, already used as media of education at the primary and secondary stages, should be urgently adopted at the university stage. At the secondary stage every child should learn three languages; the language of his region, Hindi or another Indian language if the language of his region is Hindi and English. Hindi should become the link language, a medium of expression for all the elements of the composite culture of India. For its cultural value the study of Sanskrit should be specially encouraged. Special emphasis needs to be laid on the study of English and other international languages. World knowledge is growing at a tremendous pace, especially in science and technology. India must not only keep up this growth but should also make her own significant contribution to it.

(iv) Equalisation of Educational Opportunity

Regional imbalances should be corrected and good educational facilities should be provided in rural and other backward areas. To promote social cohesion and national integration, a common school system should be adopted; this should not, however, affect the minority rights guaranteed by the Constitution. The education of girls should receive emphasis, not only on grounds of social justice, but also because it accelerates social transformation. More intensive efforts are also needed to develop education among the backward classes.

(v) Identification of Talent

For the cultivation of excellence, it is necessary that talent in diverse fields should be identified at as early an age as possible and every stimulus and opportunity given for its full development.

(vi) Work-experience and National Service

The school and the community should be brought closer through suitable programmes of mutual service and support. Work-experience and national service, including participation in meaningful and challenging programme of community service and national reconstruction, should accordingly become an integral part of education.

(vii) Science Education and Research

These should receive high priority, and science and mathematics should be an integral part of general education till the end of the school stage.

(viii) Education for Agriculture and Industry

This requires special emphasis. There should be at least one agricultural university in every State and, at other universities, selected departments may be

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strengthened for the study of one or more aspects of agriculture. Technical education and research should be related closely to industry. There should be a continuous review of the agricultural, industrial, and other technical manpower needs and a proper balance should be maintained between the output of the educational institutions and employment opportunities.

(ix) Production of Books

The quality of books should be improved and immediate steps should be taken for the production of high-quality text-books for schools and universities. Efforts should be made to have a few basic text-books throughout the country. Special attention should be given to books for children and to university level books in Indian languages.

(x) Examination

A major goal of examination reform should be to improve the reliability and validity of examinations and to make evaluation a continuous process.

(xi) Secondary Education

Facilities for secondary education should be extended expeditiously to areas and classes which have been denied these in the past. Facilities for technical and vocational education needs to be increased, diversified and related closely to employment opportunities.

(xii) University Education

(a) The number of whole time students admitted to a college or university departments should be determined with reference to the laboratory, library and other facilities and to the strength of the staff.
(b) New universities should be established only in case of proved necessity after adequate provisions of funds and with due care for ensuring proper standards.
(c) Organisation of post-graduate courses and their standards of training and research need to be improved.
(d) Centres of advanced study should be strengthened and a small number of clusters of centres aiming at the highest possible standards in research and training should be established.
(e) Research in universities requires increased support, and the research institutions should, as far as possible, function within the fold of universities or in intimate association with them.

(xiii) Part-time Education and Correspondence Courses

These should be developed on a large scale at the university stage and also be provided for secondary school students, teachers, and agricultural, industrial and other workers.

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(xiv) Spread of Literacy and Adult Education

(a) The liquidation of mass illiteracy is necessary not only for promoting people's participation in the working of democratic institutions and for accelerating programmes of production, especially in agriculture, but also for quickening the tempo of national development in general. Employees in large commercial, industrial and other concerns should be made functionally literate as early as possible. Teachers and students should be actively involved in organising literacy campaigns, especially as part of the Social and National Service Programme.

(b) The education of young farmers and the training of youth for self-employment should have high priority.

(xv) Games and Sports

Playing fields and other facilities for developing a nation-wide programme of physical education should be provided on a priority basis.

(xvi) Education of Minorities

Every effort should be made not only to protect the rights of minorities but actively to promote their educational interests.

(xvii) The Educational Structure

A broadly uniform educational structure of ten years' general education in schools, followed by two years of higher secondary stage and a three-year course for the first degree should be adopted in all parts of the country.

STRATEGY AND THRUST AREAS IN EDUCATION SECTOR IN SEVENTH PLAN

The Seventh Five-Year Plan provides for restructuring and reorientation of the education system so as to encompass the development of the country's human resource potential and to prepare the country to meet the challenges of the next century. The main thrust areas in the Seventh Plan are: (i) achievement of the universal elementary education; (ii) eradication of illiteracy in the age-group 15–35 years; (iii) vocationalisation and skill-training programmes at different levels of education; (iv) upgradation of standards and modernisation at all stages of education with effective links with the world of work and with special emphasis on science and environment and on value orientation; (v) provision of facilities for education of high quality and excellence in every district of the country; and (vi) removal of obsolescence in and modernisation of technical education.

The major strategies for achieving these objectives include effective decentralised planning and organisational reforms, promotion of non-formal and open

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learning systems, adoption of low cost alternatives and optimum use of resources, forging of beneficial linkages with industry and development agencies, and mobilisation of community resources and societal involvement.[9]

Elementary Education

Overriding priority is given in the Seventh Five-Year Plan to realising universalisation of elementary education for children in the age-group of 6–14 years by 1990. The emphasis has shifted from mere enrolment to retention of pupils in schools and to the attainment by them of basic elements of learning.

A major effort in the Seventh Plan was to extend formal school education facilities, organise meaningful non-formal education programmes and to improve the quality relevance, effectiveness and usefulness of elementary education. Special attention was to be paid to the promotion of education of girls, first-generation learners and children from Scheduled Castes/Tribes. The extension of elementary education is a part of the Minimum Needs Programme. Table 2.1 below indicates the targets set for the Seventh Plan and the likely achievement during the first three years in full-time/formal education.[10]

TABLE 2.1
Additional Enrolment in Elementary Schools[11]

(figures in lakhs)

Stage	*85–90 (VII Plan Target)*	*85–86 (Likely achievement)*	*86–87 (Likely achievement)*	*87–88 (Likely target)*	*85–87 (additional)*	*Col. 6 as % of Col. 2*
1	2	3	4	5	6	7
I. *Classes I–V*						
Boys	38	17	15	14	46	121
Girls	68	18	19	20	57	84
Total	106	35	34	34	103	97
II. *Classes VI–VIII*						
Boys	76	11	13	10	34	45
Girls	73	8	9	8	25	34
Total	149	19	22	18	59	40
III. *Classes I–VIII*						
Boys	114	28	28	24	80	70
Girls	141	26	28	28	82	58
Total	255	54	56	52	162	64

[9] Government of India, Planning Commission: *Seventh Five-Year Plan*, 1985–90, Vol. II, pp. 575–576.

[10] Government of India, Planning Commission: *Seventh Five-Year Plan (1985–90)—Mid-term Appraisal*, pp. 179–188.

[11] *Ibid.*, pp. 179–180.

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At the end of the first three years of the Plan, it can be seen that while the Seventh Plan enrolment target for Classes I–V was achieved, it was difficult to realise the same at the middle school stage. Special attention is, therefore, called for here, in the remaining period of the Plan, so that necessary programmes and momentum are developed to help realise 100 per cent enrolment by 1995. Also, the progress has not been even in all the States it was then assumed that at this stage, with the improvement of educational institutions and the introduction of the non-detention policy, the wastage rate would be reduced to a minimum, the proportion of over-aged and under-aged children in the elementary education would be reduced gradually and that enrolment would be stabilised and maintained at a ratio of 100. All this has not happened. Thus effective steps are required to be taken to remove stagnation in schools.

In order to promote the education of girls, the focus of effort will be on the appointment of women teachers, attachment of pre-school Centres, provision of free uniforms and other incentives. Unless enrolment of all eligible girls is ensured, the goal of universal elementary education will remain unfulfilled.

In the field of elementary education, the New Education Policy, 1986 (NPE) tries to tackle the problems of enrolment, drop-outs and quality through a large programme symbolically called "Operation Blackboard" coupled with a large systematic programme of non-formal education.

Non-formal Education

Another important programme for the universalisation of elementary education is Non-Formal Education (NFE) with the enrolment target of the order of 25 million during the Seventh Plan. A Centrally Sponsored Scheme of non-formal education was taken up in the nine educationally backward States from 1981–82. In the remaining States, according to a further revision of the Scheme, NFE Centres on a 50:50 financial assistance pattern, and a 90:10 pattern exclusively for girl centres, can be opened in tribal areas, desert areas, hilly areas and in urban slums for working children.[12]

The New National Programme of non-formal education introduced from 1987–88, as part of the NPE, aims at reducing the heavy burden of the task of universalisation and retention of school drop-outs on the formal system. This programme of NFE extends to all the States and is mainly targetted towards school drop-outs, children from habitations without schools, working children and girls who cannot attend whole day schools. At present there are about 2.32 lakh non-formal centres in the country with the total involvement of 64.67 lakh children.[13] The successful implementation of this programme will require deep local community involvement, flexibility and adjustability and freedom to experiment with a variety of models.

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[12] *The Education Quarterly*, Spring 1988, p. 1.
[13] Government of India, Planning Commission: *Annual Plan*, 1989–90, p. 263.

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Secondary Education

In the area of secondary education, the Seventh Plan lays emphasis on making education relevant to the world of work, teaching of science, use of education technology and special efforts for the talented rural children. In order to achieve these objectives, schemes relating to the vocationalisation of education, strengthening of the teaching of science, and *Navodaya Vidyalayas* have been launched.

(i) Vocationalisation

The Plan lays down that facilities for vocational education will be suitably diversified to cover a large number of fields in agriculture, industry, trade and commerce and services sectors. Presently, 15 States and UTs have introduced vocational courses covering 2.5 per cent of the total number of students at higher secondary stage of education.

The programme has been under implementation in a variety of ways in the States. As a follow-up of the suggestion in the NPE 1986 that vocational courses cover 10 per cent of higher secondary students by 1990 and 25 per cent by 1995,[14] the programme proposes to begin a large and substantially funded Centrally Sponsored Scheme for giving financial assistance to State Governments for the introduction of vocational courses at the +2 stage of Secondary Education.

(ii) Science Education

The importance of science education has been highlighted in the Seventh Five-Year Plan. It is proposed to update and modernise science teaching, improve laboratories and libraries in schools and ensure quality of science teachers through the large scale in-service orientation programmes. The existing teacher training colleges are also being improved for pre-service and in-service training to teachers. A Centrally Sponsored Scheme has been finalised during 1987–88 to give Central assistance to States for improving and extending facilities for science. A new scheme of environmental orientation to school education was launched in the year 1988 through State Governments and voluntary organisations.

(iii) Navodaya Vidyalayas

In order to make available facilities for quality education to rural children and to make up for the absence of good quality schools in rural areas, a major effort in the Seventh Plan was to provide residential model schools in all the districts of the country. Such schools will also help promote national integration. A programme for the establishment of *Navodaya Vidyalayas* at the rate of one per

[14] *The Education Quarterly*, Spring 1988, p. 4.

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district has been taken up in the Central Plan. Until 1988, 256 such institutions were functioning in 29 States and UTs.[15]

Teacher Education

In-service teacher training oriented towards innovative programmes in thrust areas such as education of first generation learners and children from poorer and deprived sections of the community, vocationalisation, science and environmental education, group specific non-formal education, equity in access to education, etc. constitutes one of the major strategies of the Seventh Plan. The National Council of Teacher Education is proposed to be empowered to accredit institutions of teacher education and provide guidance regarding curricula and methods. In 1986–87, the NCERT conducted a mass in-service teacher reorientation course covering about 5 lakh teachers; such reorientation courses would be organised annually till the end of the Seventh Plan so as to ensure maximum coverage. In addition to this, during the year 1989–90, sanctions for establishing 114 District Institutes of Education and Training (DIETs), for strengthening 14 Teacher Training Colleges, and establishing 3 Advanced Centres of Education were issued.[16]

Eradication of Adult Illiteracy

Eradication of illiteracy in the age group 15–35 years has been accorded a high priority in the Seventh Plan and is regarded a major thrust area. It is one of the components of the Minimum Needs Programme. The Seventh Plan target was to cover all such illiterates (110 million) by 1990. This target is not likely to be achieved. By the end of September 1988, only 39.40 lakh adult illiterates were enrolled in 132,291 adult education centres.[17] Various evaluation studies have brought out that the existing programme of Rural Functional Literacy Project (RFLP) which influences the State Adult Education Programme (SAEP) and the programme of assistance to Voluntary Agencies (VA) suffers from several inadequacies relating to motivation, training of functionaries, teaching materials, physical facilities, supervision and post-literacy and continuing education activities. All these deficiencies are sought to be made good in the National Literacy Mission (NLM).

The objectives of the Mission include the identification of areas in which science and techno-pedagogic inputs are essential and feasible, creation of a nation-wide network of training of field functionaries, creation of an environment conducive to the teaching-learning process of adults, reorganisation and harnessing of all on-going programmes of adult education and literacy as well as the creation of a managerial system for the planning, implementation,

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[15] *The Education Quarterly*, Winter 1988, p. 5.
[16] Government of India, Planning Commission: *Annual Plan*, 1989–90, p. 263.
[17] Government of India, Ministry of Human Resource Development, Department of Education: *Annual Report*, 1988–89, p. 67.

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monitoring and evaluation of the Mission. In order to fulfil these objectives, the NLM seeks to impart functional literacy to 80 million illiterate persons; 30 million by 1990 and an additional 50 million by 1995. One of the important strategies of NLM is to launch a Mass Programme of Functional Literacy (MPFL) by involving NSS, Non-NSS and NCC students on a massive scale to make the NLM successful. A National Literacy Mission Authority at the national level has been set up to oversee the planning and implementation of NLM.[18]

Higher Education

At the higher education level, the aim is to consolidate existing facilities in institutions, improve their management, redesign and restructure the courses and programmes and establish and develop mechanisms to promote coordination of and improvements in standards. The plan also provides for a selective strengthening of the higher education system, particularly in post-graduate education and research.

According to the National Policy on Education, 1986, research in the universities is provided and enhanced support and steps are being taken to ensure its high quality.

The Indira Gandhi National Open University, besides offering courses in higher education based on the principles of the open learning system will also be responsible for the training of personnel, production of programmes and development of material for utilisation through the electronic media. The National Open University will function as a nodal resource centre for the coordination of programmes and development of models for distance education, documentation and dissemination of information, and the organisation of appropriate support programmes.

The University Grants Commission (UGC) has prepared implementation guidelines/modalities for priority areas like autonomous colleges, redesigning of courses, promoting research and development and education for minorities, Scheduled Castes/Tribes, the handicapped and women, and for the normal development of universities and colleges.

The on-going schemes of the UGC for quality improvement, research support, etc. are being strengthened. In regard to the scheme for the Strengthening of Infrastructure in the Science and Technology in the university system (COSIST), financial support is provided selectively with a view to achieving a high-quality performance and raising universities to a level of excellence comparable to that of their counterparts in other developed countries.

In order to coordinate policies relating to higher education in all aspects and disciplines including agricultural education, medical education and education in law, a National Council of Higher Education is being set up as an apex body at the national level.

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[18] *The Education Quarterly*, Winter, 1988, p. 6; and Government of India, Planning Commission: *Annual Plan*, 1989–90, pp. 263–264.

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For fostering linkages between universities, development sectors and society, the UGC has laid emphasis on programmes, such as the redesigning of courses, Computer Education, Bio-technology, Environmental Science, Ocean Development and other inter-disciplinary areas. Faculty improvement programmes, professional training programmes for university and college teachers, summer schools/institutes for teachers and students and the establishment of curriculum development centres, are the notable steps in this direction.

Modernisation of Technical Education

The Seventh Plan stresses the importance and urgency to renovate technical education system to support national development goals and tasks. In particular, it calls for modernisation, increasing the coverage and removal of obsolescence in technical educational institutions, programmes, courses and facilities. It also envisages development of facilities for manpower training in emerging technology areas. Among the major programmes to be taken up are the setting up of new institutions, viz., IIT, Assam, Longowal Institute of Technology and Engineering, four new Central Residential Polytechnics for Women to be established in a phased manner and the provision of additional facilities. In addition to that, the All India Council for Technical Education has been given statutory backing by the enactment of the AICTE Act. The Council has approved 39 out of the 89 proposals received for starting new institutions/courses.[19] The scope of Technical Teachers Training Institutes (TTTIs) is also being enhanced to cater to the needs of vocational education at the secondary stage of education.

OUTLAY ON EDUCATION

Till the Fifth Five-Year Plan, education was taken to be a social service rather than an input in the development process. There was a change in the emphasis beginning with the Sixth Plan wherein it was considered to be pivotal in the social and economic development of the country through development of human resources. In the Seventh Plan, the main thrust is towards promotion of quality and excellence and restructuring the education system to meet the challenges of emerging areas of science and technology. The New Education Policy (1986), adopted during the course of the Plan, marks the beginning of a new epoch whereby emphasis is being laid on educational technology, value-orientation and national integration.

Investment on education has been rising over the plan periods as is evidenced from the actual outlay on education given in Table 2.2.[20]

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[19] Government of India, Ministry of Human Resource Development, Department of Education: *Annual Report*, 1988–89, p. 5.

[20] Government of India, Ministry of Planning, Central Statistical Organisation: *Statistical Pocket Book*, India 1981, pp. 207–212.

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TABLE 2.2
Outlay on Education in Five-Year Plans

	Rs in crores
First Plan (1951–56)	145
Second Plan (1956–61)	273
Third Plan (1961–66)	589
Fourth Plan* (1969–74)	774
Fifth Plan** (1974–79)	1,710 (includes Science and Technology)
Sixth Plan (1980–85)	2815.31
Seventh Plan (1985–90)	6382.65 (outlay includes Art and Culture, Sports and Youth Welfare)

* During the period 1966–69 before this Plan, the total outlay was Rs 307 crore.
** Fifth Plan terminated in 1977–78. The outlay in the year 1979–80 was Rs 263 crore.

The Seventh Five-Year Plan 1985–90 has provided Rs 6,382.65 crore for Education, Culture, and Youth services, the break-up of which is given in Table 2.3.

TABLE 2.3
Seventh Plan Outlay on Education

(Rs in crores)

Sl. No.	*Major Head*	*Centre*	*States*	*Union Territories*	*Total*
1.	General Education	1518.64	2863.18	393.48	4775.30
	(of which MNP Component)				
	(a) Elementary Education	(100.00)	(1549.05)	(181.40)	(1830.45)
	(b) Adult Education	(130.00)	(277.66)	(2.34)	(360.00)
	Total outlay on MNP Component	(230.00)	(1776.71)	(183.74)	(2190.45)
2.	Technical Education	220.00	388.12	73.67	681.79
3.	Art and Culture	350.00	114.86	17.26	482.12
4.	Sports and Youth Services	300	122.55	20.88	443.43
5.	Grand Total	2388.64	3488.71	505.30	6382.65

Table 2.4 shows the approved outlay and anticipated expenditure during 1985–86, the first year of the Seventh Five-Year Plan.[21]

[21] Government of India, Planning Commission: *The Seventh Five-Year Plan*, 1985–90, Vol. II, p. 269; and *Annual Plan*, 1986–87, p. 205.

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TABLE 2.4
Outlay for 1985–86

(Rs in crores)

Head of Department	*Approved outlay*			*Anticipated Expenditure*		
	Centre	*States & UTs*	*Total*	*Centre*	*States & UTs*	*Total*
1. General Education	252.85	542.29	795.14	217.35	538.96	756.31
Elementary	37.58	237.19	274.77	20.00	251.47	271.47
Adult	63.00	26.53	89.53	44.63	23.05	67.68
2. Technical Education	75.65	76.57	152.22	75.40	71.66	147.06
3. Art & Culture	19.00	20.13	39.13	21.00	23.76	44.76
4. Sports & Youth Affairs	11.68	22.61	34.29	11.18	23.81	34.99
5. Education	359.18	661.60	1020.78	324.93	658.19	983.12

A provision of Rs 1,297.39 crore was made for 1986–87 for the Education, Art and Culture and Sports sectors. The details are given in Table 2.5.[22]

Tables 2.6, 2.7 and 2.8 show the outlays for the years 1987–88, 1988–89 and 1989–90 respectively.

TABLE 2.5
Outlay for 1986–87

(Rs in crores)

Sl. No.	*Subhead*	*Centre*	*States/ UTs*	*Total*	*Percentage increase over approved outlay for 1986–87*
1.	General Education	275.96	656.58	932.54	17
	Elementary Education	31.80	328.93	360.73	31
	Adult Education	63.00	33.86	96.86	8
2.	Technical Education	76.00	106.63	182.63	20
3.	Art & Culture	58.80	35.50	94.30	141
4.	Sports & Youth Services	50.33	37.59	87.92	156
5.	Total Education	461.09	836.30	1297.39	27

NATIONAL POLICY ON EDUCATION, 1986*

As has been seen earlier, in the post-Independence period, the educational system was examined by several commissions and committees. The most comprehensive appraisal, however, was made by the Education Commission (1964–66) under the Chairmanship of Dr D S Kothari. The 1968 Policy on

[22] *Ibid.*, p. 206.
* For text of National Policy on Education, 1986 please see Appendix 2.3.

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TABLE 2.6
Outlay for 1987–88 by Major Heads of Education[23]

(Rs in crores)

Sl. No.	*Subhead*	*Centre*	*States/ UTs*	*Total*	*Percentage increase in 1987–88 over outlay for 1986–87*
1.	General Education of which	625.06*	797.11	1422.17	52.50
	Elementary Edn. (MNP)	220.00	406.33	626.33	73.63
	Adult Education (MNP)	75.50	38.16	113.66	17.34
2.	Technical Education	173.00	123.40	296.40	62.29
3.	Art & Culture	67.00	42.62	109.62	16.24
4.	Sports & Youth Service	61.29	49.28	110.57	25.76
5.	Total	926.35@	1012.41	1938.76	49.44

* Does not include Rs 25 crore provided for Education Programmes in the border states of Gujarat, Rajasthan, Jammu & Kashmir and Punjab. This is included in the outlay for border areas.
@ Excludes Rs 0.65 crore for Secretariat Social Services.

TABLE 2.7
Outlay for 1988–89 by Major Heads of Education[24]

(Rs in crores)

Sl. No.	*Subhead*	*Centre*	*States/ UTs*	*Total*	*Percentage increase in 1988–89 over outlay 1987–88*
1.	General Education	656.66*	990.24	1646.90	15.80
	Elementary Education	254.40	498.96	753.36	20.28
	Adult Education	75.50	41.63	117.13	3.05
2.	Technical Education	141.00	135.60	276.60	(−)6.68
3.	Art & Culture	66.00	45.76	111.76	1.95
4.	Sports & Youth Affairs	69.64	55.83	125.47	13.48
5.	Total	933.30	1227.43	2160.73	11.45

* Excludes Rs 35.50 crore for Educational development in Border States and Rs 0.70 crore.

Education, formulated on the basis of this Commission's Report, attempted to link education with national development.

The 1968 Policy could not be implemented in all aspects due to several constraints. No detailed plan was prepared for its implementation, nor were adequate funds available for the purpose. The goal of making a new human being, to create equal educational opportunities for all citizens in the country and to inculcate the feeling of unity and national integration through education had not been fully realised. On the other hand, the population was constantly

[23] Government of India, Planning Commission: ***Annual Plan***, 1987–88, p. 250.
[24] Government of India, Planning Commission: ***Annual Plan***, 1988–89, p. 271.

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TABLE 2.8
Outlay for 1989–90 by Major Heads of Education[25]

(Rs in crores)

Sl. No.	*Head of Development*	*Centre*	*States/ UTs*	*Total*	*Percentage increase in 1989–90 over outlay in 1988–89*
1.	General Education				
	of which MNP	663.01*	1314.17	1977.18	20.05
	(a) Elementary Education	234.40	747.33	981.73	30.31
	(b) Adult Education	76.17	55.92	132.09	12.77
2.	Technical Education	168.00	143.41	311.41	12.58
3.	Youth Affairs & Sports	64.63	70.01	134.64	7.31
4.	Art & Culture	57.54	49.27	106.81	(−)4.43
	Total	953.18*	1576.86	2503.04	15.84

* Excludes Rs 50 crore for Border Area Development & Rs 82 crore for Secretarial Social Services.

increasing and there was a consequent rise in the number of illiterates. Concern was being expressed about falling standards of education. The youth had to be trained to meet the challenge of new technologies of the coming years. Further, it was also realised that the country had reached a stage in its economic and technological development when a major effort should be made to derive the maximum benefit from the assets already created and to ensure that the fruits of change reach all sections of the society. The country was, therefore, faced with a situation in which there was no option but to bring about a radical change in the education system.[26]

With this as the backdrop, the Prime Minister, Shri Rajiv Gandhi, announced on January 5, 1985, in his first broadcast to the nation, that a new Education Policy would be formulated for the country. Following this, a comprehensive appraisal of the existing educational scene was made. A document 'Challenge of Education—A Policy Perspective' was prepared for the purpose of, and as a basis for, initiating a nationwide debate on the new Education Policy. This Document was placed before Parliament on August 19, 1985. It was also discussed in the Conference of State Education Ministers from August 29–30, 1985. In the debate that ensued, the issues relating to all aspects of a new Education Policy were discussed all over the country in which teachers, students, parents, educationists, administrators, employers, scientists, writers, artists, voluntary agencies, and mass organisations of workers, women, youth and representatives of all major political parties actively participated. The views, suggestions, and detailed memoranda received from different quarters were carefully studied and incorporated in the "Draft National Policy, 1986—A

[25] Government of India, Planning Commission: *Annual Plan*, 1989–90, p. 265.
[26] Reproduced from the note on "National Policy on Education, 1986" prepared by the Ministry of Human Resource Development (Department of Education), p. 1.

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Presentation". Before being presented to Parliament, the draft of the Policy was discussed in the meetings of the Central Advisory Board of Education and the National Development Council held in April 1986. These meetings were attended by Education Ministers and Chief Ministers of States, apart from educationists and representatives of different Ministries of the Union Government. The National Policy on Education, 1986 (NPE) was discussed and adopted by the Lok Sabha on May 8 and by the Rajya Sabha on May 13, 1986.[27]

The NPE spells out specifically the direction in which efforts were required to be made to meet the challenge of education. The following aspects, among others, have been emphasised in the Education Policy:

(i) Creation of a National System of Education, and
(ii) Removing the imbalances and disparities in the field of education.

The NPE envisages a National System of Education based on a national curricular framework containing a common core along with other components. The common core includes the history of India's freedom movement, the constitutional obligations and any other content essential to nurture national identity. These elements cut across subject areas and are designed to promote values such as India's common cultural heritage, egalitarianism, democracy and secularism, equality of the sexes, protection of the environment, removal of social barriers, observance of the small family norm and inculcation of the scientific temper.

The NPE emphasises that the entire nation would be responsible for, and committed to educational reconstruction, universalisation of elementary education, spread of literacy, promotion of scientific and technological research and removal of all educational imbalances.

The NPE stresses that the Union Government would assume greater responsibility for ensuring national unity, enhancing qualitative aspects of education, planning the programmes of education to conform to manpower requirements and laying greater emphasis on research and advanced studies. The education would be made available to every child up to a certain level, irrespective of caste, creed and sex. This alone, however, is not sufficient in itself for ensuring equality in the country. It is also necessary to have a system which will provide equal opportunities of success to all. Besides, awareness of the inherent equality of all will be created through the core curriculum so as to remove prejudices and complexes transmitted through social environment and the accident of birth.

In this context, special stress has been laid on the development of education in respect of Scheduled Castes and Scheduled Tribes. The Policy includes adequate provision of scholarships to SC/ST students and facilities for special coaching. Similarly, social justice demands that special provisions be made for the education of those minority groups which have lagged behind educationally.

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[27] *Ibid.*, pp. 1–2.

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Besides, keeping in view the large number of physically and mentally handicapped persons in the country, appropriate measures to provide for their education have been envisaged.

Also, education will be used as an agent of basic change in the status of women. Emphasis has been laid on equal educational opportunities in all fields, removal of sex bias against women in text-books and top priority to the universalisation of elementary education for girls.[28]

As regards adult education, the NPE stipulates that the entire nation will be committed to the eradication of illiteracy in the age group 15–35. Besides literacy and creating social awareness, adult education programmes lay emphasis on upgradation of skills and continuing education. A vast programme of adult education involving teachers, students, youth, voluntary agencies and employers has been implemented through various ways and channels.

The policy also lays emphasis on pre-primary education. It provides for essential facilities in primary schools, including at least two reasonably large rooms that are usable throughout the year, and necessary toys, blackboards, maps, charts and other learning materials. At least two teachers, one of them a woman, will work in every school, the number increasing as early as possible to one teacher per class. A phased drive, symbolically called "Operation Blackboard", has been undertaken so as to improve primary schools all over the country. In this endeavour, the Government, local bodies, voluntary agencies and individuals have been fully involved. A large and systematic programme of non-formal education has been launched for school drop-outs, for children from habitations without schools, and working children and girls who cannot attend whole-day schools.[29]

The National Policy on Education has also provided for the establishment of pace-setting schools. These schools are meant for gifted children studying in the primary schools in rural areas who do not normally get the opportunity of a good education owing to poverty. Education in these schools—called *Navodaya Vidyalayas*—is free of charge, with reservations for Scheduled Castes and Scheduled Tribes in proportion to their population in the district. The proportion, in any case, should not be less than the national average. Another special feature is that 20 per cent children in each of these schools should come from *Navodaya Vidyalayas* in other parts of the country thereby promoting national integration and an opportunity to live and learn together. The three languages, as envisaged in the Three-Language-Formula, will play a significant role in the educational reconstruction in the country.

Special emphasis has been laid on the vocationalisation of education in the NPE. It is proposed that vocational courses should cover 10 per cent of higher secondary students by 1990 and 25 per cent by 1995. Steps will be taken to ensure that a substantial majority of the products of vocational courses are employed or become self-employed. The courses offered would be regularly

[28] *Ibid.*, p. 2.
[29] *Ibid.*, p. 3.

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reviewed. The Government will also review its recruitment policy to encourage diversification at the secondary level.[30]

Significant changes have been envisaged also in the areas of higher and technical education. One of these changes pertains to the delinking of degrees from jobs. Delinking will be applied in services for which a University degree need not be a necessary qualification. Necessary reforms will be undertaken in the examination system so that examinations are held on time and their credibility improved. Colleges whose standards are high would be accorded autonomy.

Science teaching and research have been accorded high priority in the NPE. Technical education, so far, has been confined to cater to manpower requirements in the field of engineering in urban areas. The effort will now be to provide technical education bearing in mind the requirements of the rural areas, particularly in the unorganised sector.

The NPE provides that in the next few years the outlay on education will be stepped up to the extent essential for policy implementation in the Seventh Plan. It will be ensured that from the Eighth Plan onwards, it will uniformly exceed six per cent of the national income.[31]

PROGRAMME OF ACTION, 1986

In order to prepare the "Programme of Action" (POA) for the implementation of the National Policy on Education (NPE), twenty-three Task Forces were constituted by the Government in 1986. Each of them was assigned a specific subject covered by the NPE. Eminent educationists, experts and senior representatives of Union and State Governments were also associated with them. The terms of reference of these Task Forces were to examine the subjects assigned to them, to elaborate the implications of the specific statements contained in the NPE, to project the necessary actions and indicate the broad targets and the phasing of the programmes, and to indicate the financial implications with reference to each phase.

The Task Forces submitted their reports in July 1986. Subsequently, a Conference of Education Secretaries of States and Union Territory Administrators was convened on July 20, 1986 to discuss these reports. Suggestions received during this Conference were carefully considered and the POA was prepared with reference to the main areas covered in the NPE. The Central Advisory Board of Education met in New Delhi on August 1–2, 1986 and discussed the POA document. Several valuable suggestions were received from the Education Ministers of State Governments and Union Territory Administrations and educationists who participated in the discussion. All the suggestions

[30] *Ibid.*, p. 3.
[31] *Ibid.*, pp. 3–4.

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were taken into account in the POA which was presented to the Parliament in August 1986.[32]

The POA provides for the actions required to be taken so as to implement the directions of the NPE. It also provides for a broad strategy within which detailed schemes are drawn up and put into operational form. The various programmes enumerated in the POA are spread over several years so that the implementing agencies may be able to match the mobilisation of resources with the process of implementation. The implementation of these programmes would be a cooperative effort between the Union and the States/UTs.[33]

The major thrust areas covered under the POA are as follows.

Early Childhood Care and Education Programme

The POA aims at the upgradation, expansion and strengthening of the existing Early Childhood Care and Education (ECCE) programme which, *inter alia*, includes Integrated Child Development Services (ICDS); assistance to Early Childhood Education Centres (ECE), *Balwadis* and day care centres; pre-primary schools; and maternal and child health services.

Keeping in mind the role of ECCE as a support service in the universalisation of elementary education as well as for human resource development, ECCE would be, in the first instance, directed to the most underprivileged groups, especially those who are still outside the mainstream of formal education.[34]

According to the POA, every child should be assured access to the fulfilment of all basic needs. It suggests that 70 per cent of the target groups (children 0–6 years) should be covered by all services by AD 2000, whereas health and nutrition services should be extended to all the needy groups as early as possible. By the end of the Seventh Plan, a modest network of ECCE facilities should be established in all tribal development blocks, blocks having substantial scheduled castes population and slums in large cities. A minimum of 2.50 lakh centres should be established by 1990. ECCE should be expanded to a level of 10 lakh centres by 1995 and 20 lakh by the year AD 2000. As the early childhood and education programmes are bound to expand considerably over the next two decades, corresponding training facilities should be made available for all levels of functionaries. These programmes should be evaluated by independent agencies once in five years. Such evaluation reports should be followed up to improve the quality of the services.[35]

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[32] Government of India, Ministry of Human Resource Develoment, Department of Education: *Programme of Action, National Policy on Education*, 1986, pp. (i)–(ii).

[33] *Ibid.*, pp. (ii)–(iii).

[34] *Ibid.*, pp. 1–3.

[35] *Ibid.*, pp. 4–8.

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ELEMENTARY EDUCATION, NON-FORMAL EDUCATION AND OPERATION BLACKBOARD

Although between 1950–51 and September 1987 the number of primary schools increased from 2,10,000 to 5,43,677, yet a large number of habitations are without primary schools and nearly one-third of the schools in rural areas have only one teacher.

The NPE gives an unqualified priority to universalisation of elementary education (UEE). The POA envisages that the main feature of the implementation strategy should be area-specific and population-specific planning. The planning would be decentralised and the teachers as well as the local community fully involved in this process. The emphasis should be on universal enrolment and universal retention of children up to 14 years of age so as to provide them with full and compulsory education as envisaged in the Directive Principles of State Policy of the Constitution. Also, a substantial improvement in the quality of education has been emphasised. For this purpose, a programme called Operation Blackboard (OB) has been initiated so as to ensure provision of minimum essential facilities in primary schools—material facilities as well as learning equipment. The new programme of Non-Formal Education would have certain features like a learner-centred approach with the instructor as a facilitator, emphasis on learning rather than teaching, use of efficient techniques to ensure fast pace, etc. which would help in the maintenance of quality of the programme. It is envisaged that all children should be enrolled in whole-time schools of good quality, and until that becomes possible they should be provided opportunities of part-time, non-formal education. The evaluation and monitoring system would also be improved. Greatest attention would be paid to creating a scientific system of evaluation of learners, which would serve both as the basis for improvement of the academic programme and as the measure of the overall quality of the elementary education system. The emphasis in the monitoring system would shift from the collection of information on enrolment to the retention of children, regularity of attendance and levels of achievement.[36]

Secondary Education and Navodaya Vidyalayas

The policy relating to secondary education implies extension of the school system in the unserved areas, consolidation of the existing facilities and providing special arrangements for gifted children and high achievers.

The POA envisages that by AD 2000, all the unserved areas would be fully served by opening secondary schools in such areas. For working people who have missed secondary school education, a flexible non-formal arrangement has been provided by establishing open schools in a phased manner by 1990 with a resource centre in each district. Besides, the existing facilities in the secondary schools would be strengthened by constructing additional classrooms, laboratories, and provision of adequate playgrounds. The teacher competencies

[36] *Ibid.*, pp. 9–17.

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would be improved by attracting better qualified people to the profession. All the three streams, i.e. humanities, science and commerce should be provided in all the schools. Also, the vocational stream should be provided in selected schools.

In order to cater to the category of high achievers, one *Navodaya Vidyalaya* would be set up in each district during the Seventh Five-Year Plan. In these schools, reservation upto 75 per cent has been provided for children from rural areas. An effort would be made to cover girls to the extent of one-third in each such school. Education, including boarding and lodging, would be free in these schools.[37]

VOCATIONALISATION OF EDUCATION

The POA lays greater emphasis on vocationalisation of education at primary, secondary and higher secondary stages. It is estimated that about 80 per cent of the students do not study beyond Class 10. The drop-outs up to and inclusive of Class 8 are over 120 lakh per year. Roughly 20 lakh boys and girls cross Class 8 but do not study beyond 10. All of them need opportunities for training in some skill, either in traditional occupations or in new areas, to enable them take up gainful employment. The school system should give greater attention to the areas of agriculture, industries, business and commerce, home science, and health and para-medical vocations. The POA also provides for vocational education for certain special groups like tribals, the rural population, women, handicapped and disabled persons, etc. Besides, a beginning has been made in the area of non-formal vocational education for drop-outs and other target groups.

A Joint Council for Vocational Education (JCVE) has been provided in the POA as a national apex body for policy planning and coordination of education at national level. Besides, organisations like the National Council of Educational Research and Training (NCERT), Central Institute of Vocational Education (CIVE), Regional Colleges of Education (RCE), State Councils of Educational Research and Training (SCERT), State Institutes of Vocational Education (SIVE), Technical Teachers Training Institutes (TTTIs), etc. should be strengthened by providing additional infrastructure and faculty positions to perform their functions effectively for the development of vocationalisation.[38]

HIGHER EDUCATION

According to the POA, many of the 150 Universities and 5000 colleges in the country have not been provided with a minimum level of infrastructure for the

[37] *Ibid.*, pp. 24–27.
[38] *Ibid.*, pp. 31–33.

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maintenance of quality and standard. Therefore, a beginning should be made to expand and improve facilities in these institutions in the Seventh and the subsequent Plans. It is envisaged that about 500 colleges should be developed as autonomous institutions in the Seventh Plan. Higher education programmes should be redesigned to meet the growing demands of specialisation, to provide flexibility in the courses, to update and modernise curricula, to facilitate reforms in the evaluation procedure, etc. The POA proposes orientation programmes and other courses for teachers. In order to give a boost to research activities, the POA proposes a National Research Foundation to bring about better coordination, overview and quality control. A national apex body should also be established for higher education to deal with policy aspects and to undertake integrated planning. State Councils of Higher Education should be set up with a view to plan and coordinate higher education at the State level. The State Governments and Universities should be encouraged to admit students based on merit without any regard to domicile so as to facilitate inter-regional mobility.[39]

Open University and Distance Education

The Open University system augments opportunities for higher education, ensures access, is cost-effective and promotes a flexible and innovative system of education. In order to fulfil these objectives, the Indira Gandhi National Open University was established in September 1985. The University has been assigned the responsibility of coordinating the distance learning system in the country and determine its standards.[40]

Rural Universities and Institutes

The POA envisages the development of a pattern of education related to the needs of rural communities. This should be done by strengthening and supporting the programmes of the Gandhian system of education. The Union Government should implement such programmes by providing resource support both for developing the infrastructure as well as conceptual, methodological and academic inputs in designing and structuring of such programmes. Besides teaching and learning materials, evaluation procedures, etc. should be developed. The POA provides for the setting up of a Central Council of Rural Institutes and the appointment of a working Group to formulate detailed schemes for the development of rural institutes.[41]

Technical and Management Education

Our successive Five-Year Plans have laid great emphasis on the development of technical and management education. In India, the expansion of technical

[39] *Ibid.*, pp. 39–47.
[40] *Ibid.*, p. 48.
[41] *Ibid.*, pp. 50–51.

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education both at the degree and diploma levels, enlargement of programme areas and increase in annual intake capacity is without parallel anywhere else in the world.

The All India Council for Technical Education (AICTE), an apex body at the national level supported by its Regional Committees, Boards of Studies, has been entrusted with the responsibility of the coordinated development of technical education and maintenance of prescribed standards.

The Union Government should constitute Technology Watch Groups in higher institutions of learning in each State which would look out for new and emerging technologies, evaluate their relevance and feasibility in the national context and their potential for adaptation.[42]

Delinking of Degrees from Jobs and Manpower Planning

The policy visualises the delinking of university degrees for recruitment to services where a university degree is a necessary qualification at present. This measure would lead to a refashioning of job-specific courses thereby discouraging the craze for degrees and reduce the pressure on higher education. For this purpose, the POA proposes to establish a National Testing Service for conducting tests of candidates to determine their suitability for specified jobs so as to pave the way for emergence of norms of comparable competence across the nation. Such tests would allow people, whether they have formal degrees or not, to demonstrate that they have the proficiency to qualify for a variety of jobs that have been traditionally limited only to graduates.[43]

Research and Development

In the NPE, great stress has been laid on research as an essential component of higher education because of its role in creating new knowledge and insights and imparting dynamism to the educational process. According to the POA, there should be enhanced support for research so as to ensure a high quality of research. The Government and the community should find funds for Research and Development programmes so as to generate knowledge and develop technologies crucial to self-sustained economic development. It is necessary that not less than 30 per cent of the central plan allocation for higher education be earmarked for supporting research work by the educational institutions which already have the necessary basic capabilities, particularly the necessary manpower resources.[44]

Education for Women's Equality

Between 1951 and 1981, literacy amongst women improved from 7.93 per cent to 24.82 per cent. However, in absolute numbers, illiterate women have

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[42] *Ibid.*, pp. 51–70.
[43] *Ibid.*, pp. 77–79.
[44] *Ibid.*, pp. 86, 101–102.

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increased during this period from 158.7 million to 241.7 million (excluding Assam). In order to make a sufficient contribution towards women's equality in education, the POA provides for a phased time-bound programme of elementary education and adult education. Besides, it provides for increased women's access to vocational, technical, and professional education, and to existing and emerging technologies.[45]

Education of SC/ST and other Backward Sections

Systematic efforts should be directed towards the educational development of the Scheduled Castes/Scheduled Tribes and other backward sections of the society. To achieve this objective, cent per cent enrolment of SC/ST children in the age group 6–11 (Classes I–V), satisfactory completion of the primary stage of education or its equivalent through the non-formal stream has to be ensured by 1990.

At least 75 per cent of the children in the age group 11–14 (Classes VI–VIII) would have to be enrolled and retained in school leading to satisfactory completion of Class VIII. The operational strategy for achieving these goals includes incentives for indigent families, scholarships to deserving children, provision of hostel facilities, etc.[46]

MINORITIES EDUCATION

Since some minority groups are educationally deprived or backward, greater attention should be paid to their education in the interest of equality and social justice. This should be in accordance with the constitutional guarantees given to them to establish and administer their own educational institutions, and to protect their languages and culture. Simultaneously, objectivity should be reflected in the preparation of text-books and in all school activities.

The POA provides for setting up of Resource Centres to impart training and guidance to minority educational institutions situated near these Centres. Also, efforts should be made to teach science, mathematics and English on a voluntary basis in institutions imparting instructions in traditional schools. Early childhood Education Centres, wherever possible, should be set up in these schools and in areas predominantly inhabited by educationally backward minorities. Besides, provisions should be made for vocational courses in higher secondary schools, especially catering to educationally backward minorities.[47]

Education of the Handicapped

As far as possible handicapped children should be enrolled in the common

[45] *Ibid.*, p. 105.
[46] *Ibid.*, p. 111.
[47] *Ibid.*, pp. 115–17.

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schools. However, children with severe handicaps should be enrolled in special schools. Such schools should be established at the district and sub-district levels. In each of the districts where such a school is set up, a vocational training centre, either as a part of the school or as an adjunct to it, should be developed. Separate hostels should be provided for boys and girls.[48]

Various incentives should be provided to help handicapped students. Special training for teachers of handicapped children, improvement in the monitoring of information regarding institutions imparting education to the handicapped, etc. should be provided. The NCERT and National Institutes for Handicapped should develop a design of evaluation incorporating quantitative as well as qualitative aspects.

Adult Education

Adult Education is a means for reducing economic, social and gender disparities. The National Programme of Adult Education (NPAE) would be a phased time-bound programme, covering approximately 40 million by 1990 and another 60 million by 1995. The POA proposes to reorganise the existing programmes by introducing flexibility in the project structure, greater use of spoken language, emphasis on the training of functionaries, increase in the number of women teachers, etc. Adult Education and development programmes should be combined thereby laying stress on mass functional literacy programmes. Continuing education should be encouraged as an indispensable aspect of the strategy of human resource development. The resource base for making the programme a success should be strengthened and a proper learner evaluation system should be developed.[49]

Content and Process of School Education

According to the POA, the whole operation of reorienting the content and process of education should be jointly planned by the NCERT and the State agencies concerned. While the national curriculum framework and the common core provide the detailed objectives and guidelines for curricular change, their implementation in the form of the introduction of new instructional materials and appropriate teaching, learning and evaluation norms will have to be ensured by the National, State and other educational authorities in the shortest possible time. In order to achieve this objective, the NCERT has been assigned the responsibility of bringing modern syllabi and exemplar instructional packages in ten core curricular areas.[50]

Evaluation Process and Examination Reforms

In order to attain the objective of integrating the process of evaluation with

[48] *Ibid.*, pp. 126–28.
[49] *Ibid.*, pp. 130–33.
[50] *Ibid.*, pp. 143–44.

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teaching and learning, several reforms would be necessary. The short-term measures proposed to reform the system at the school level include the continuation of the public examinations at the Class X and Class XII levels, decentralisation of the operations involved in the conduct of examinations to make the system work more effectively, spot evaluation of answer scripts, etc. At the university level, institutional evaluation should be introduced at the post-graduate level and students' performance should be indicated through letter grades. External examinations should continue to be held by Universities having many affiliated colleges. Steps should be taken to eliminate malpractices in the examination system.

The long-term programmes would, *inter alia*, include laying down the levels of attainment expected at Classes V, VIII, X and XII by the Boards of Education, introduction of continuous institutional evaluation of scholastic and non-scholastic aspects of education along with external examinations, introduction of cumulative grading systems, etc.

At the University level, the possibility of developing an alternative system of evaluation in place of external examinations for affiliated colleges should be explored, the question of some Universities functioning only as examining bodies for a number of colleges should be examined and an agency should be developed for continuous research and development in evaluation procedure.[51]

The Cultural Perspective

The thrust of the POA, in the first instance, would be on building up pervasive consciousness of India's cultural heritage through curriculum changes, utilisation of local material and community interaction. This would be followed by a stress on specialisation of courses and sophistication of cultural software. The momentum would be built up by an extensive network of cultural and educational institutions so as to make an optimal use of cultural expertise, facilities and materials.[52]

Teachers and Their Training

The POA emphasises that the method of recruitment of teachers should be reorganised to ensure objectivity, merit and conformity with spatial and functional requirements. Giving particular importance to the training of elementary school teachers, it is envisaged that selected institutions would be developed as District Institutes of Education and Training (DIET), both for pre-service and in-service courses for elementary school teachers, and for the continued education of the personnel working in non-formal and adult education programmes.

The curriculum for teachers' training needs to be revised in the light of the new policy thrusts. In particular, there should be an emphasis on the integration of education and culture, work experience, physical education and sports, the

[51] *Ibid.*, p. 147.
[52] *Ibid.*, p. 171.

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study of Indian Culture and the problems of the unity and integration of India. Planning and Management are emerging areas and the curriculum should lay an emphasis on the importance of these areas. The NCERT and UGC should undertake the task of preparing new learning materials such as text-books, reference books, anthologies, slides, films, etc.[53]

IMPLEMENTATION OF THE NATIONAL POLICY ON EDUCATION

During the year 1987–88, all the major schemes under the National Policy on Education, 1986 (NPE) and the Programme of Action, came under implementation. Since then significant progress has been achieved in implementing the schemes of Operation Blackboard, Non-Formal Education, Vocationalisation of Education, *Navodaya Vidyalayas*, Education Technology, Science-teaching in schools, Adult Education, etc. In this direction, the response of the State Governments and Union Territory Administrations has, indeed, been very encouraging. An amount of Rs 800 crore was provided for the Central Education Sector in 1987–88 and was utilised on a project-oriented basis. For the financial year 1988–89 also, funds have been provided at last year's level, i.e. Rs 800 crore. For 1989–90, Rs 953.18 crore have been earmarked. Activities initiated during 1987–88 are being continued.[54]

The progress of implementation of the NPE in respect of major programmes is given below:

Elementary Education

Operation Blackboard

In May '1987, a scheme called "Operation Blackboard" was launched with Central assistance for the improvement of primary schools all over the country by providing them with (i) two large rooms that are usable in all weather; (ii) necessary toys and games material, blackboards, maps and charts; and (iii) an additional teacher, preferably a woman, wherever there is only one in a school. The drive is phased to cover 20 per cent community development blocks/ municipal areas in 1987–88, 30 per cent in 1988–89 and 50 per cent in 1989–90.

During 1987–88, an amount of Rs 110.61 crore was provided as assistance to 24 States and 3 Union Territories for covering 1,13,417 schools over 21 per cent of the primary schools in the country and for providing 36,891 additional teachers for such schools.

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[53] *Ibid.*, pp. 190–95.

[54] Government of India, Ministry of Human Resource Development, Department of Education: National Policy on Education, *1986—Implementation Report*, June 1988, p. 1; and Government of India, Planning Commission: *Annual Plan*, 1989–90, p. 265.

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Non-Formal Education

The scheme of non-formal education (NFE), introduced during the Sixth Five-Year Plan as a Centrally assisted scheme in the educationally backward States of Assam, Andhra Pradesh, Uttar Pradesh, Rajasthan, Jammu & Kashmir, West Bengal, Bihar and Orissa was reorganised and expanded in 1987 to cover, in addition, Arunachal Pradesh as also urban slums, hilly, desert and tribal areas and projects for working children in all the other States. Under the revised scheme, assistance is being given to State Governments in the ratio 50:50 and 90:10 for running general NFE centres and girls NFE centres respectively. Hundred per cent Central assistance is being given to voluntary agencies.[55]

In 1987–88, proposals for running 1.85 lakh NFE centres were sanctioned in 15 States/UTs. In the voluntary sector, nearly 9000 such centres run by over 10 voluntary agencies were sanctioned. Against a target of 2 lakh centres, 1.9 lakh centres were sanctioned at an expenditure of Rs 38.07 crore. For the year 1988–89, Rs 1.28 crore were sanctioned to the voluntary agencies approved last year and an expenditure of Rs 9.00 crore already incurred. However, with only Rs 49.05 crore allotted to the scheme against a requirement of Rs 73 crore, physical achievements would suffer.[56]

Restructuring and Reorganisation of Teacher Education

During 1986–87 and 1987–88, 4.42 lakh and 4.55 lakh school teachers, respectively, have been oriented under the Mass Orientation Programmes. During 1987–88, an amount of Rs 32.40 crore was given as Central assistance to States for such programmes. These programmes would continue during the remaining period of the Seventh Plan with the target of orienting about 5 lakh teachers annually.[57]

Vocationalisation of Education

The NPE laid down the target of diversification of 10 per cent students at the higher secondary stage to the vocational stream by 1990 and 25 per cent by 1995. The scheme of vocationalisation of Secondary Education was circulated to the State Governments/UT/Administrations on February 1, 1989. During 1987–88, proposals from 18 States/UTs for implementation of the scheme were approved and Central assistance amounting to Rs 32.26 crore was sanctioned to cover 1011 higher secondary schools for about 3100 vocational courses. A provision of Rs 50 crore was made for the year 1988–89 for this scheme.

Computer Education in Schools

In 1987, an additional 700 schools were added to the 1250 already covered

[55] *Annual Report*, 1988–89, *op. cit.*, p. 10.
[56] Implementation Report, *op. cit.*, p. 6.
[57] *Ibid.*, p. 7.

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under the existing Computer Literacy and Studies in Schools (CLASS) programme.

NCERT was the nodal agency to implement this project. A scheme for a regular implementation of the programme provides for covering 13,000 higher secondary schools by 1990, supplying at least five systems in each school to ensure coverage of all students at the plus two level and integration of the programme with the curriculum, and resource support to schools through regional and district level resource centres. In 1987–88, Rs 5.39 crore were spent on this scheme. A provision of Rs 6.00 crore was made for 1988–89.

STRENGTHENING OF SCIENCE TEACHING IN SCHOOLS

The NPE reiterates the importance of mathematics and science education as well as inculcation of scientific temper. Regarding the implementation of programmes for the improvement of science education, the teachers should be adequately motivated to enable them play their role effectively, and suitable training should be provided to them. A detailed scheme for the improvement of science education in schools was prepared and circulated to the State Government administrations in January 1988. During the year 1987–88, Central assistance amounting to Rs 29.27 crore was sanctioned to 19 States/UTs covering about 21,000 upper primary schools, about 7000 secondary and higher secondary schools for improving the laboratories and about 8900 secondary and higher secondary schools for improving the libraries by procuring about 500 books on science and mathematics. A provision of Rs 20 crore was made for 1988–89 for this scheme.[58]

Environmental Orientation to School Education

The centrally sponsored scheme of Environmental Orientation to School Education with hundred per cent financial assistance to States/UTs and voluntary organisations was started from the year 1988–89. A provision of Rs 2.70 crore was made under the Plan budget for 1988–89. The scheme *inter alia* includes review of curriculum, preparation of revised text-books, curricular and extra-curricular materials, preparation of general informative books/brochures/posters/audio-visual materials, adoption of monuments by schools, study of ecological problems, participation in conservation projects, etc.[59]

The content and process of the School Education is determined on the one hand by the structure of education, availability of teachers, school facilities, and on the other by the teaching programme in the school and its efficiency. The following notable measures have been taken for the implementation of the Programme:

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[58] *Ibid.*, pp. 9–17.
[59] *Annual Report*, 1988–89, *op. cit.*, pp. 14–15.

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(i) The States have been advised to ensure that all the school-less habitations having a population of 300 crore more should be provided a primary school by 1990.
(ii) All the States have now switched over to the 10+2 system as far as the structure of school education is concerned.
(iii) The schemes of Operation Blackboard and Teacher Education have come under implementation in a significant way.
(iv) Mass orientation of 5 lakh school teachers annually is being done through the NCERT and the State Governments generally during the summer vacations since 1986. The participation in the training was 87.8 per cent in 1986 and 83 per cent in 1987.[60]

Establishment and Management of Navodaya Vidyalayas

In order to provide a good education to children, especially to those in rural areas, the Government of India have launched a scheme to establish, on an average, one *Navodaya Vidyalaya* in each district of the country during the Seventh Five-Year Plan period. An outlay of Rs 500 crore was made for establishing 448 such schools—256 *Navodaya Vidyalayas* covering 22 States and 7 Union Territories have so far been established in the country.[61]

EDUCATION FOR WOMEN'S EQUALITY

The content and processes of education have been modified to introduce the value of women's equality at all stages of education, in formal as well as non-formal areas. With a view to effect overall improvement in women's status, a project entitled "Education for Women's Equality" was formulated for implementation in ten selected districts.

Adult Education

The national adult education programme (NAEP) has been reviewed and a comprehensive programme, i.e. the National Literacy Mission (NLM) formulated. NLM lays emphasis on a thorough reorganisation of on-going programmes of adult education. The NLM would impart functional literacy to 80 million illiterate persons in the 15–35 age-group—30 million by 1990 and an additional 50 million by 1995. The focus of the NLM would be on rural areas, particularly women and persons belonging to SC/ST.

The entire Programme of Adult Education has been geared to generate and sustain motivation at all levels, especially that of the learners. Steps have been taken to design motivation-centred programmes of direct interest to the learners.

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[60] *Implementation Report*, 1988, *op. cit.*, p. 21.
[61] *Annual Report*, 1988–89, *op. cit.*, p. 17.

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Special steps include the review of teaching learning material, revamping of training, deployment of competent instructors and special measures for the mobilisation and enrolment of learners belonging to scheduled castes and scheduled tribes, and women learners.

During 1988–89, 513 Rural Functional Literacy Projects (RFLPs) covering almost all the districts of the country were continued. In all 39.40 lakh adult illiterates were enrolled under the RFLPs by the end of September 1988 in 1,32,291 adult education centres.

Financial assistance is provided to voluntary agencies working in the field of adult education. During the year 1988–89, about 200 voluntary agencies were assisted for running 11,415 Adult Education Centres and 964 *Jana Shikshan Nilayams* upto November 1988.

A Summer Vacation Literacy Programme under the principle of "Each One Teach One" has been undertaken by NSS and Non-NSS students and NCC cadets since the summer of 1986. A sum of Rs 2 crore was sanctioned in favour of State Resource Centres (SRCs) for the publication of 10.25 lakh literacy kits for distribution to learners for the summer of 1988. Under UGC-aided adult education programmes, 92 Universities and 2136 Colleges have been sanctioned 25,709 Adult Education Centres, in addition to the involvement of youth of the non-NSS/NCC students under the Mass Programme for Literacy.[62]

Language Development

In order to facilitate the gradual adoption of Indian languages as media of instruction at the University stage, a scheme was introduced in 1968–69 by the Ministry of Education to provide Central assistance of Rs 1 crore to each of the 15 participating States for the production of university-level books (in various disciplines) in Indian languages.

For the effective implementation of the Three-Language Formula, cent per cent Central assistance is made available to non-Hindi speaking States/UTs for appointment of Hindi teachers in upper primary/higher secondary schools. Non-Hindi speaking States/UTs are being provided assistance for meeting the expenditure on strengthening of existing training colleges/wings and for opening of new training colleges/wings.[63]

HIGHER EDUCATION

As regards higher education, the University Grants Commission (UGC), within the limited resources available, has been taking measures to strengthen the infrastructure in the Universities and Colleges. In these efforts, the UGC is giving greater attention to the development of undergraduate education in the

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[62] *Ibid.*, p. 67; and *Implementation Report, op. cit.*, pp. 26–30.
[63] *Ibid.*, p. 34.

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colleges. While post-graduate education and research is being supported extensively, Departments and Centres in the Universities in certain specialised areas are being supported with special assistance to develop them as centres of excellence. Special Cells have been set up to re-design the courses and prepare their curriculum content.[64]

In order to improve efficiency, 103 Universities have been sanctioned computer facilities. In addition, the UGC has agreed to provide mini computers to 400 Colleges during the Seventh Plan period. To begin with 281 colleges have been selected out of which 186 have been sanctioned financial assistance for the purpose up to December 1988.

500 colleges are proposed to be developed as autonomous colleges by the end of Seventh Plan. Proposals of 76 colleges (19 in Andhra Pradesh, 28 in Tamil Nadu, 4 in Rajasthan and 25 in Madhya Pradesh) have been approved for grant of autonomous status, thus making a total of 95 autonomous colleges till November 1988. Proposals made by several colleges are under various stages of consideration by the concerned universities.[65]

A scheme for the improvement of salary and service conditions of university and college teachers was announced in June 1987 as one of the measures for the improvement of the quality and standard of teaching and research in the universities and colleges. Following further discussions with the representatives of teachers/teachers organisations, the scheme was modified and communicated to States/UTs on July 22, 1988.

The UGC has approved a scheme for establishment of Academic Staff Colleges (ASC) for the orientation of the newly appointed college and university lecturers. Grants amounting to Rs 3.47 crore were sanctioned to 41 universities for the setting up of Academic Staff Colleges and upto November 1988 as many as 38 such staff colleges had become functional, 45 Orientation Courses had been organised and about 2500 teachers had been given orientation.

The Commission continues to provide assistance to 26 Centres of Advanced Study and 75 Departments of Special Assistance in Science, Engineering and Technology and 15 Centres of Advanced Study and 58 Departments of Special Assistance in Humanities and Social Sciences. In addition, 36 Departmental Research Support Projects in Science and 13 in Humanities and Social Sciences are under implementation.

Ninety-five Departments are being assisted under the scheme of Strengthening Infrastructure in Science and Technology Education and Research till November 30, 1988.[66]

In order to create an effective machinery for the planning and coordination of higher education at State level, the Commission approved revised guidelines for the setting up of the State Councils of Higher Education. A State Council for Higher Education has been set up in Andhra Pradesh.

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[64] *Ibid*., p. 38.
[65] *Annual Report*, 1988–89, *op. cit.*, p. 37.
[66] *Ibid*., p. 38.

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The UGC has been televising the TV Programmes on higher education entitled "Countrywide classroom". These programmes are telecast daily for two hours and are designed to enrich the knowledge of undergraduate students and teachers. The Commission has agreed to provide colour television sets to colleges in phases during the Seventh Plan Period. The Commission is at present supporting four Educational Media Research Centres for the training of personnel and production of software.[67]

Technical Education

During the past four decades, there has been a phenomenal expansion of technical education in the country. The NPE has pointed to several new initiatives to further revamp the technical education system. During the year 1987–88, with the enactment of a special law, All India Council for Technical Education was provided with statutory powers so as to ensure: the proper planning and coordinated development of the technical education system throughout the country; the promotion of qualitative improvement of technical education in relation to planned quantitative growth; and the regulation of the system and proper maintenance of norms and standards.[68]

Transfer of Technology to Rural Areas through Community Polytechnics

In addition to offering diploma courses in various branches of engineering and technology, these polytechnics are required to interact with the environment and serve as focal points to promote transfer of technology to rural areas. The NPE stipulates that the existing scheme of community polytechnics would be strengthened to increase its quality and coverage. The objectives of the scheme, *inter alia*, are: (i) Community Polytechnics would organise manpower development programmes to enable villagers to acquire employable skills; (ii) technical services and community support services would be provided by the polytechnics to sustain new technologies; (iii) dissemination of information to villagers to enable them to adopt and sustain the relevant technologies; and (iv) the State Directorates of Technical Education would generally supervise the performance of the Community Polytechnics to ensure their proper functioning.

Residential Polytechnics for Women

A scheme to establish residential polytechnics for women was formulated and got approved with the following objectives:

(i) To improve technical education of women quantitatively and qualitatively.

(ii) To identify, start and conduct engineering- and technology-based diploma courses and advanced technician courses including those in high technology areas, consistent with employment potential.

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[67] *Implementation Report*, 1988, *op. cit.*, p. 53.

[68] *Ibid.*, p. 59.

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(iii) To offer short-term continuing education programmes to update working women technicians and offer non-formal courses to housewives and unemployed women.

(iv) To provide incentives through free ships and stipends for increasing opportunities for women's entry to polytechnic courses.

A National Expert Committee has been constituted to examine the proposals and make recommendations on the selection of site, identification of courses, mechanism for implementation and other relevant aspects.[69]

PROMOTING EQUALITY OF OPPORTUNITIES FOR SC/ST AND EDUCATIONALLY BACKWARD MINORITIES

In order to ensure equality of opportunity for SC/ST and Educationally Backward minorities, the following measures have been taken.

(i) A scheme for providing remedial and special coaching for upgrading the merit of SC/ST students has been formulated and circulated to the State Governments so as to upgrade the merit of SC/ST students by providing them extra coaching, both remedial (in Classes IX–XII) and special (in Classes XI–XII) with a view to removing their educational deficiencies and facilitating their admission in professional courses. During the year 1988–89, 225 students were covered under the scheme "Upgradation of merit of SC/ST students by special and remedial coaching" in 12 approved schools in Andhra Pradesh, Assam, Orissa and Rajasthan and 113 students were selected for nomination in approved residential secondary schools all over India.

(ii) A High-level Committee set up in the Ministry of Welfare for upward revision of rates of scholarships, increasing the income limit of parents, streamlining procedures and tilting the rates in favour of professional courses has already submitted its report. The recommendations of the Committee are being considered.

(iii) Ten Community Polytechnics have been located in minority-concentration areas with a view to extending benefits of vocational and technical skill training to persons belonging to educationally backward minorities. More than 10,000 persons have been trained through short-term vocational courses in various skills/crafts.

(iv) Orientation programmes for managers/principals and training programmes for teachers of minority managed institutions have been organised by the NCERT. The NCERT has conducted 42 programmes ranging from 3 to 30 days. A total of 1038 personnel have participated in these programmes.[70]

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[69] *Ibid.*, pp. 67–68.
[70] *Ibid.*, p. 69.

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DISCUSSION ON NATIONAL POLICY ON EDUCATION AND PROGRAMME OF ACTION IN PARLIAMENT

On May 6, 1986, the Minister of Human Resource Development, Shri P. V. Narasimha Rao, moved a resolution for the approval of the National Policy on Education (NPE), laid on the Table of the House on May 2, 1986. The NPE was discussed by the House from May 6–8, 1986.

Replying to the debate on May 8, 1986, Shri P. V. Narasimha Rao thanked the members for expressing their considered views on the NPE and said that we were facing a situation in which explosion of knowledge had become more or less unmanageable. As such we had to think of new methods for coping with this situation. What a Delhi school gets, the school in the remotest corner should also get by way of educational technology. That is why, perhaps, for the first time, the Government of India have gone for a national system of education which insists on a given skill and competence acquired by all children throughout the country. The core curriculum had been formulated in consultation with everyone hailing from everywhere keeping in view nationalistic ideals and goals. Sports education or the performance in sports and games had been made an integral part of the pupil's assessment which involves a massive programme of providing playfields, sports materials, teachers, etc. for the students, he added.

Shri Rao further said that the setting up of *Navodaya Vidyalayas* was national integration in action. In all these schools, there was going to be a three-language formula. In these schools, the rural children would get the full benefit as the schools would be run on a no-charge basis. Such schools would be centres of excellence. As regards funds, Shri Rao assured members that to the extent we are prepared to take up a concrete programme, money would not be wanting. After an extensive discussion for three days, the House adopted the NPE on May 8, 1986. The Programme of Action was also discussed and approved by the Lok Sabha on August 21, 1986.[71]

On May 12, 1986, the Minister of Human Resource Development, Shri P. V. Narasimha Rao, also moved a resolution in the Rajya Sabha for the approval of the National Education Policy laid on the Table of the House on May 2, 1986. The policy was discussed for two days and approved by the House on May 13, 1986.

Replying to the debate on May 13, 1986, Shri P. V. Narasimha Rao said that there has been no national system of education because such a system could not be evolved by the States. Each State evolves its own system. Further, some States do not want Hindi at all and the two-language formula reigns supreme there. Referring to vocationalisation, Shri Rao admitted that this was an area where there had been near-total failure. However, in the NEP, it had been

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[71] *L.S. Deb.*, May 6, 1986, cc. 330–88; May 7, 1986, cc. 332–40; May 8, 1986, cc. 24–119; and August 21, 1986, cc. 86–206.

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given a high priority. As regards finances, the National Development Council had taken a decision to the effect that from the Eighth Five-Year Plan onwards, 6 per cent of the Gross National Product would be spent on education.[72]

The Rajya Sabha discussed the Programme of Action on August 22, 1986. Replying to the debate, Shri Narasimha Rao assured the House that as far as additional resources for funding the action plan were concerned, the Government was fully committed to the imperatives of the New Education Policy. Therefore, additional funds would be made available to the extent of minimum requirements. To this end, the Government had undertaken a thorough review of both Plan and non-Plan expenditure provided in the Seventh Plan to divert resources for this vital sector of human resource development. The Resolution moved by the Minister seeking the approval of the Programme of Action was adopted by the House on August 22, 1987.[73]

[72] *R. S. Deb.*, May 12, 1986, cc. 211–304; and May 13, 1989, cc. 102–232.
[73] *R. S. Deb.*, May 22, 1986, cc. 92–161.

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APPENDIX 2.1

PRINCIPAL RECOMMENDATIONS OF THE EDUCATION COMMISSION, 1964–66

A. Education and National Objectives

Education and National Development

The most important and urgent reform needed in education is to relate it to the life, needs and aspirations of the people and thereby make it a powerful instrument of social, economic and cultural transformation necessary for the realisation of the national goal. For this purpose, the following five-fold programme has been suggested:

(a) Relating education to productivity;
(b) Strengthening social and national integration through educational programmes;
(c) Consolidation of democracy through education;
(d) Modernisation of society through awakening of curiosity, development of attitudes and values and building up certain essential skills.

(a) *Education and Productivity* The following programmes are needed to relate productivity to education:

(i) Science education should be an integral part of school education and ultimately become a part of all courses at the University stage;
(ii) Work experience to become an integral part of all education;
(iii) Every effort should be made to orient work experience to technology and industrialisation and the application of science to productive processes, including agriculture; and
(iv) Vocationalisation of secondary education and agricultural and technical education to be emphasised.

(b) *Social and National Integration* The following steps have been suggested to strengthen national consciousness and unity.

(i) Adoption of a common school system of public education as the national goal and its effective implementation in a phased programme spread over 20 years.
(ii) Organisation of social and national service programmes concurrently with academic studies in schools and colleges and to make them obligatory for all students at all stages;
(iii) Participation in programmes of community development and national reconstruction should be an integral part of all education from the primary to the under-graduate stages;

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(iv) Continuance of NCC on its present basis till the end of the Fourth Five-Year Plan;

(v) Development of an appropriate language policy for the education system;

(vi) Adoption of the regional language as the medium of instruction;

(vii) Energetic action for the production of books and literature, particularly scientific and technical, in regional languages. This should be the responsibility of universities assisted by the UGC.

(viii) Continuance of the use of English as the medium of instructions in the All-India Institutions. The eventual adoption of Hindi to be considered in due course subject to certain safeguards;

(ix) Regional languages to be made the language of administration for the regions concerned at the earliest possible time;

(x) Continuation of the promotion of the teaching and study of English right from the school stage. Special attention to be given to the study of Russian;

(xi) English language to serve as a link-language in higher education for academic work and intellectual inter-communication. Hindi to serve as the link language of the majority of our people and also adoption of all measures for the spread of Hindi in non-Hindi areas;

(xii) Combining two modern Indian languages at the BA and MA level; and

(xiii) Promotion of national consciousness through the promotion of understanding and re-valuation of our cultural heritage and the creation of a strong driving faith in the future towards which we aspire.

(c) *Education for Democracy* The following Programme has been suggested for the consolidation of democracy.

(i) Provision of free and compulsory education of good quality for all children up to the age of 14 years as envisaged in Art. 45 of the Constitution;

(ii) Promotion of programmes of adult education aiming not only at liquidation of illiteracy, but also at raising the civic and vocational efficiency and general cultural level of the citizens;

(iii) Training of efficient leadership at all levels by expanding secondary and higher education and providing equal opportunities for all children of merit and promise, irrespective of economic status, caste, religion, sex or place of residence;

(iv) Development of a scientific mind and outlook, tolerance, concern for public interest and public service, self-discipline, self-reliance, initiative and a positive attitude to work.

(d) *Social, Moral and Spiritual Values* The education system should emphasise the development of fundamental, social, moral and spiritual values. From this point of view the Centre and State Governments should adopt measures to introduce education in moral, social and spiritual values in all institutions

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under their (or local authority) control on the lines recommended by the University Education Commission and the Committee on Religious and Moral Instruction.

(e) *Education and Modernisation* The following has been suggested in this regard.

(i) Awakening of curiosity, the development of proper interest, attitudes and values and the building up of such essential skills as independent study and the capacity to think and judge for oneself; and
(ii) Creation of an intelligentsia of adequate size and competence.

B. The Educational System: Structure and Standard

(1) Stages in Education and Their Inter-relationship

In this regard the following has been suggested.

(i) The new educational system should consist of (a) one to three years of pre-school education; (b) a primary stage of 7 to 8 years divided into a lower primary stage of 4 to 5 years and a higher primary stage of 3 or 2 years; (c) a lower secondary stage of 3 or 2 years; (d) a higher secondary stage of two years of general education or one to 3 years of vocational education; (e) a higher education stage having a course of 3 years or more for the first degree and followed by courses for the second or research degree of varying durations;
(ii) Age of admission to Class I ordinarily not to be less than 6;
(iii) First public examination to come at the end of 10 years of schooling;
(iv) Secondary schools should be of two types—high schools providing a ten-year course and higher secondary schools providing a course of 11 to 12 years.
(v) New Higher Secondary course beginning in Class XI and XII to provide specialised subjects; and
(vi) Transfer of the Pre-University course from the Universities and affiliated colleges to secondary schools by 1975–76 and the duration of the course to be lengthened to two years by 1985–86. The University Grants Commission should be responsible for effecting the transfer of all pre-university or intermediate work from university and affiliated colleges to schools.

(2) Reorganisation of the University Stage

The following has been recommended in this respect.

(i) Duration of the first degree should not be less than three years and the duration of the second degree to be 2 to 3 years;
(ii) Some universities should start graduate schools with 3-year Master Degree courses in certain subjects; and

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(iii) Three-year special courses for the first degree which begin at the end of the first year of the present 3-year degree courses should be started in selected subjects and in selected institutions.

(3) Utilisation of Facilities

The following methods have been suggested to make full utilisation of available facilities:

(i) Instructional days in the year to be increased to about 39 weeks for schools and 35 weeks for colleges and pre-primary schools; and
(ii) Standard calendar to be worked out by the Ministry of Education and the University Grants Commission in consultation with State Governments and Universities respectively. Other holidays to be cut down to 10 in a year.

C. Teacher Status

The Commission has emphasised that the most urgent need was to upgrade the remuneration of teachers substantially, particularly at the school stages, and recommended that the Government of India should lay down for the school stage, minimum scales of pay for teachers and assist the States and Union Territories—to adopt equivalent or higher scales to suit their conditions. Scales of pay of school teachers belonging to the same category but working under different managements, such as Government, local bodies or private managements should be the same.

D. Teacher Education

The professional preparedness of teachers being crucial to the qualitative improvement of education, the Commission has urged that this be treated as a key-area in educational development and adequate financial provisions be made for it. It further recommended that:

(i) In order to make the professional preparation of teachers effective, teacher education must be brought into the mainstream of the academic life of the Universities, on the one hand, and of the school life and educational development, on the other;
(ii) The quality of the programme of teacher education should be improved;
(iii) New professional courses should be developed to orient headmasters, teachers, educators, and educational administrators to their special field of work;
(iv) The post-graduate courses in education should be flexible and be planned to promote an academic and scientific study of education and to prepare personnel for special fields of education, requiring special knowledge and initiation; and
(v) Improvement of teacher education institutions and expansion of training facilities should be undertaken.

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E. Towards Equalisation of Educational Opportunity

Observing that every attempt should be made to equalise educational opportunities or at least to reduce some of the most glaring inequalities which now exist, the Commission has stressed the need for the following programmes:

(i) The development of a common school system of public education in which no fees would be charged, where access to good schools will be open to all children on the basis of merit, and where the standard maintained would be high enough to make the average parent feel no need to send his child to an independent institution;

(ii) The development of adequate programmes of student-service at all stages which will include free supply of books and writing materials at the primary stage, the provision of book banks and text-books, libraries in all institutions of secondary and higher education, the provision of transport, day-study centres or hostels, and the institution of guidance facilities and health services;

(iii) The development of a large programme of scholarships at all stages and in all sectors combined with a programme of placement and maintenance of quality institutions, to ensure that the brighter children at least will have access to good education and that their further education will not be handicapped on economic grounds;

(iv) Special encouragement to the education of girls and the backward classes;

(v) The reduction of imbalances in educational development between the different parts of the country-districts and States; and

(vi) The development of a comparatively small but effective programme for the education of the handicapped children.

F. School Education Curriculum

(1) Essentials of Curricular Improvement

For the improvement and upgrading of school curricula, the following measures have been suggested:

(i) (a) For the improvement of school curricula research should be undertaken by University Departments of Education, Training Colleges, State Institutes of Education and Boards of School Education; (b) Revision of curricula should be based on such research; (c) Basic to the success of any attempt at curriculum improvement is the preparation of text-books and teaching-learning materials; and (d) The orientation of teachers to the revised curricula through in-service should be achieved through seminars and refresher courses;

(ii) Schools should be given the freedom to devise and experiment with new curricula suited to their needs. A lead should be given in the matter of training colleges and universities through their experimental schools;

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(iii) Advanced curricula should be prepared by the State Board of School Education in all subjects and introduced in a phased manner in schools which fulfil certain conditions of Staff and facilities;

(iv) The formation of Subject Teachers Associations for the different schools subjects will help stimulate experimentation and upgrade curricula.

(2) Study of Languages

The following has been suggested for the study of languages at the school stage.

(i) The language study at the school stage needs review and a new policy requires to be formulated particularly in view of the fact that English has been mostly used as an associated official language of the country for an indefinite period;

(ii) The modification of the language formula should be guided by the following principles:

(a) Hindi as the official language of the Union enjoys an importance next only to that of the mother tongue.

(b) A workable knowledge of English will continue to be an asset to students.

(c) The proficiency gained in a language depends as much upon the types of teachers and facilities as upon the length of time in which it is learned.

(d) The most suitable stage for learning these languages is the lower secondary (Classes VIII–X).

(e) The introduction of the additional language should be staggered.

(f) Hindi or English should be introduced at a point where there is greatest motivation and need.

(g) At no stage should the learning of four languages be made compulsory.

(3) Three Language Formula

The modified Three Language Formula should include the following:

(i) The mother tongue or the regional languages;

(ii) The official language of the Union or the associate official language of the Union so long as it exists; and

(iii) A modern Indian or Foreign Language not covered under (a) and (b) and other than that used as the medium of instruction.

G. Educational Administration and Supervision

A sympathetic and imaginative system of supervision and administration is essential for initiating and accelerating educational reform. Educational administration should therefore, be improved and strengthened through programmes like the following:

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(i) Strengthening of the administration at the national level through the reorganisation of the Ministry of Education; the creation of the I.E.S.; the expansion of the Central and Centrally sponsored sectors and the provision of national leadership of a stimulating but non-coercive character in educational thought.

(ii) Strengthening and reorganisation of State Education Departments through improvement of service conditions and recruitment procedures of departmental staff;

(iii) Development of State Institutes of Education as academic wings of the State Educational Department.

(iv) Adoption of the district as the principal administrative and planning unit and the creation of District School Boards to administer all education in the district below the University level;

(v) Strengthening of the Offices of the District Educational Officers as the principal service and supervision centres for all the schools within and supervisory role with the State-level directorates;

(vi) Improvement of existing grant-in-aid codes and methods of financial assistance to private schools;

(vii) Provisions of in-service education for all Officers of the Department, non-gazetted officers being trained at the State level in the State Institutes of Education and the gazetted officers being trained at the national level in a National Staff College for Educational Administrators; and

(viii) Promotion of research and comparative studies in educational development with a view to vitalising and improving administrative procedures.

H. Higher Education: Objectives and Improvements

(1) Establishment of Major Universities

The most important reform for higher education is the development of some major universities where first-class post-graduate work and research would be possible and whose standards would be comparable to the best institutions of their type in any part of the world. In this regard, the Commission has suggested that:

(i) The major universities are to be selected from amongst the existing universities and to include one of the IITs and one agricultural university;

(ii) These universities must make an effort to recruit talented students on an all-India basis and an intellectually distinguished group of teachers and provide satisfactory conditions for work;

(iii) A national scholarship scheme combined with a placement programme should be organised, the scholarship being tenable at the major universities or advanced centres. They should be continued at its post-graduate level.

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(2) Centres of Advanced Studies

Partly as a preparation and partly as a consequence of the establishment of major universities, the Commission observed that it was necessary to strengthen and expand the UGC programme for the establishment of Centres (Clusters) of Advanced Study. The Commission recommended that fifty such centres, some in modern Indian languages, should be established over the next five to ten years. The programme should be extended to agriculture, engineering, medicine and modern Indian languages, not covered under the scheme at present.

(3) Improvement of Other Universities and Affiliated Colleges

The major universities should be utilised to provide teachers of quality to the other universities and affiliated colleges. From this point of view the Commission has suggested that:

(i) Talented students from the major universities should be induced to join the teaching profession and a majority of them placed in universities and colleges other than their own so that they can help raise standards;
(ii) The UGC should sponsor an identification and placement service to facilitate the recruitment of outstanding persons to the teaching profession;
(iii) The UGC should make available fellowships to outstanding persons and send them to work in departments of universities; and
(iv) Strong inter-university ties should be formed among the major universities, advanced centres and outstanding affiliated colleges in particular fields of research; by encouraging conferences for presentation and constructive discussion of papers.

(4) Medium of Education to the Universities

The Commission has made the following recommendations with regard to the medium of education:

(i) The regional languages should be adopted as media of education at the university stage in a phased programme spread over ten years;
(ii) At the earlier stage of the undergraduate course, the bulk of the instruction may be given through the regional language while at the post-graduate stage it may be in English;
(iii) In due course, all teachers in higher education should, as far as possible, be bilingual and post-graduate students should be able to follow lectures and use reading material in the regional language as well as in English;
(iv) The maintenance of college teaching through Hindi in the non-Hindi areas or of Urdu in any part of the country where there is reasonable number of Urdu-speaking students should be permitted and encouraged.
(v) Centres of advanced studies should be established for the development of all modern Indian languages including Urdu;

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(vi) The classical and modern Indian languages should be provided as elective subjects, no language being made a compulsory subject of study at the university stage; and
(vii) The teaching of important library languages other than English should be stressed, in particular the study of Russian on a large scale.

Adult Education

(1) *Liquidation of Illiteracy* The Commission stressed that every effort should be made to eradicate illiteracy from the country as early as possible and that in no part of the country, however, backward, should the process take more than 20 years. The Commission urged that the national percentage of literacy should be raised to 60 per cent by 1971 and to 80 per cent by 1976. As a first step to arrest the growth of illiteracy following measures have been suggested:

(i) Expansion of universal schooling of five years duration to the age-groups 6–11;
(ii) Provision of part-time education to children of age-group 11–14 who either miss schooling or drop prematurely out of the school;
(iii) Provision of part-time general and vocational education to the younger adults of the age-group 15–30; and
(iv) Wide-spread correspondence courses should be organised for those who are unable even to attend part-time courses.

(2) *Role of Universities for Eradication of Illiteracy* The Commission feels that the Universities in India should assume a much larger responsibility for educating the adults. In order to have an efficient machinery for launching carefully planned adult education programmes, each university should establish a Board of Adult Education with representatives from all departments involved in adult education programmes.

(3) *Organisation and Administration* The Commission has recommended the establishment of a National Board of Adult Education on which all relevant ministries and agencies should be represented. The Board would advise the Governments, at the Centre and in the States, on all matters relating to informal adult education and training and draw up plan and programmes for their consideration. Similar bodies should be set up at the State and District levels.

Voluntary agencies working in the field of adult education should receive every encouragement, financial and technical.

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APPENDIX 2.2

RESOLUTION ON NATIONAL POLICY ON EDUCATION, 1968

Education has always been accorded an honoured place in Indian Society. The great leaders of the Indian freedom movement realised the fundamental role of education and, throughout the nation's struggle for independence, stressed its unique significance for national development. Gandhiji formulated the scheme of basic education seeking to harmonise intellectual and manual work. This was a great step forward in making education directly relevant to the life of the people. Many other national leaders likewise made important contributions to national education before Independence.

2. In the post-Independence period, a major concern of the Government of India and of the States has been to give increasing attention to education as a factor vital to national progress and security. Problems of educational reconstruction were reviewed by several Commissions and Committees, notably the University Education Commission (1948–49) and the Secondary Education Commission (1952–53). Some steps to implement the recommendations of these commissions were taken; and with the passing of the Resolution on Scientific Policy under the leadership of Jawaharlal Nehru, the development of science, technology and scientific research received special emphasis. Towards the end of the Third Five-Year Plan a need was felt to hold a comprehensive review of the educational system with a view to initiating a fresh and more determined effort at educational reconstruction; and the Education Commission (1964–66) was appointed to advise the Government on "the national pattern of education and on the general principles and policies for the development of education at all stages and in all aspects". The Report of the Education Commission has since been widely discussed and commented upon. The Government is happy to note that a general consensus on the national policy on education has emerged in the course of these discussions.

3. The Government of India is convinced that a radical reconstruction of education on the broad lines recommended by the Education Commission is essential for the economic and cultural development of the country, for national integration and for realising the ideal of a socialist pattern of society. This will involve a transformation of the system to relate it more closely to the life of the people; a continuous effort to expand educational opportunity; a sustained and intensive effort to raise the quality of education at all stages; an emphasis on the development of science and technology; and the cultivation of moral and social values. The educational system must produce young men and women of character and ability committed to national service and development. Only then will education be able to play its vital role in promoting national progress, creating a sense of common citizenship and culture, and strengthening national integration. This is necessary if the country is to attain its rightful place in the comity of nations in conformity with its great cultural heritage and its unique potentialities.

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4. The Government of India accordingly resolves to promote the development of education in the country in accordance with the following principles.

(1) Free and Compulsory Education

Strenuous efforts should be made for the early fulfilment of the Directive Principle under Article 45 of the Constitution seeking to provide free and compulsory education for all children up to the age of 14. Suitable programmes should be developed to reduce the prevailing wastages and stagnation in schools and to ensure that every child who is enrolled in school successfully completes the prescribed course.

(2) Status, Emoluments and Education of Teachers

(a) Of all the factors which determine the quality of education and its contribution to national development, the teacher is undoubtedly the most important. It is on his personal qualities and character, his educational qualifications and professional competence that the success of all educational endeavour must ultimately depend. Teachers must, therefore, be accorded an honoured place in society. Their emoluments and other service conditions should be adequate and satisfactory, having regard to their qualifications and responsibilities.

(b) The academic freedom of teachers to pursue and publish independent studies and researches and to speak and write about significant national and international issues should be protected.

(c) Teachers' education, particularly in service education, should receive due emphasis.

(3) Development of Languages

(a) *Regional Languages* The energetic development of Indian languages and literature is a *sine qua non* for educational and cultural development. Unless this is done, the creative energies of the people will not be released, standards of education will not improve, knowledge will not spread to the people and the gulf between the intelligentsia and the masses will remain if not widen further. The regional languages are already in use as media of education at the primary and secondary stages. Urgent steps should be taken to adopt them as media of education at the university stage.

(b) *Three-language Formula* At the secondary stage, the State Governments should adopt, and vigorously implement the three-language formula which includes the study of a modern Indian language, preferably one of the southern languages, apart from Hindi and English in the Hindi-speaking States, and of Hindi along with the regional language and English in the non-Hindi speaking States. Suitable courses in Hindi and/or English should also be available in universities and colleges with a view to improving the proficiency of students in these languages upto the prescribed university standards.

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(c) *Hindi* Every effort, should be made to promote the development of Hindi. In developing Hindi as the link language, due care should be taken to ensure that it will serve, as provided for in Article 351 of the Constitution, as a medium of expression for all the elements of the composite culture of India. The establishment, in non-Hindi States, of colleges and other institutions of higher education which use Hindi as the medium of education should be encouraged.

(d) *Sanskrit* Considering the special importance of Sanskrit to the growth and development of Indian languages and its unique contribution to the cultural unity of the country, facilities for its teaching at the school and university stages should be offered on a more liberal scale. Development of new methods of teaching the language should be encouraged, and the possibility explored of including the study of Sanskrit in those courses (such as modern Indian languages, ancient Indian history, indology and Indian philosophy) at the first and second degree stages, where such knowledge is useful.

(e) *International Languages* Special emphasis need to be laid on the study of English and other international languages. World knowledge is growing at a tremendous pace, especially in science and technology. India must not only keep up this growth but should also make her own significant contribution to it. For this purpose, the study of English deserves to be specially strengthened.

(4) Equalisation of Education Opportunity

Strenuous efforts should be made to equalise educational opportunity.

(a) Regional imbalances in the provision of educational facilities should be corrected and good educational facilities should be provided in rural and other backward areas.

(b) To promote social cohesion and national integration the Common School system as recommended by the Education Commission be adopted. Efforts should be made to improve the standard of education in general schools. All special schools like Public schools should be required to admit students on the basis of merit and also to provide a prescribed proportion of free-studentship to prevent segregation of social classes. This will not, however, affect the rights of minorities under Art. 30 of the Constitution.

(c) The education of girls should receive emphasis, not only on grounds of social justice, but also because it accelerates social transformation.

(d) More intensive efforts are needed to develop education among the backward classes and especially among the tribal people.

(e) Educational facilities for the physically and mentally handicapped children should be expanded and attempts should be made to develop integrated programmes enabling the handicapped children to study in regular schools.

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(5) Identification of Talent

For the cultivation of excellence, it is necessary that talent in diverse fields be identified at as early an age as possible and every stimulus and opportunity given for its full development.

(6) Work-experience and National Service

The school and the community should be brought closer through suitable programmes of mutual service and support. Work-experience and national service including participation in meaningful and challenging programmes of community service and national reconstruction should accordingly become an integral part of education. Emphasis in those programmes should be on self-help, character formation and on developing a sense of social commitment.

(7) Science Education and Research

With a view to accelerating the growth of the national economy science education and research should receive high priority. Science and mathematics should be an integral part of general education till the end of the school stage.

(8) Education for Agriculture and Industry

Special emphasis should be placed on the development of education for agriculture and industry.

(a) There should be at least one agricultural university in every State. These should, as far as possible, be single-campus universities but where necessary, they may have constituent colleges on different campuses. Other universities may also be assisted, where necessary potential exists, to develop strong departments for the study of one or more aspects of agriculture.

(b) In technical education, practical training in industry should form an integral part of such education. Technical education and research should be related closely to industry, encouraging the flow of personnel both ways and providing for continuous cooperation in the provision, design and periodical review of training programmes and facilities.

(c) There should be a continuous review of the agricultural, industrial and other technical manpower needs of the country and efforts should be made continuously to maintain a proper balance between the output of the educational institutions and employment opportunities.

(9) Production of Books

The quality of books should be improved by attracting the best writing talent through a liberal policy of incentives and remunerations. Immediate steps should be taken for the production of high quality text-books for schools and universities. Frequent changes of text-books should be avoided and their prices should be low enough for students of ordinary means to buy them. The

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possibility of establishing autonomous book corporations on commercial lines should be examined and efforts should be made to have a few basic text-books common throughout the country. Special attention should be given to books for children and to university level books in regional languages.

(10) Examinations

A major goal of examination reforms should be to improve the reliability and validity of examination and to make evaluation a continuous process aimed at helping the student to improve his level of achievement rather than at 'certifying' the quality of his performance at a given moment of time.

(11) Secondary Education

(a) Educational opportunity at the secondary (and higher) level is a major instrument of social change and transformation. Facilities for secondary education should accordingly be extended expeditiously to areas and classes which have been denied those in the past.

(b) There is need to increase facilities for technical and vocational education at this stage. Provision of facilities for secondary and vocational education should conform broadly to requirements of the developing economy and real employment opportunities. Such linkage is necessary to make technical and vocational education at the secondary stage effectively terminal. Facilities for technical and vocational education should be suitably diversified to cover a large number of fields, such as agriculture, industry, trade and commerce, medicine and public health, home management, arts and crafts, secretariat training, etc.

(12) University Education

(a) The number of whole-time students to be admitted to a college or university department should be determined with reference to the laboratory, library and other facilities and to the strength of the staff.

(b) Considerable care is needed in establishing new universities. They should be started only after an adequate provision of funds has been made for the purpose and due care has been taken to ensure proper standards.

(c) Special attention should be given to the organisation of post-graduate courses and to the improvement of standards of training and research at this level.

(d) Centres of advance study should be strengthened and a small number of 'clusters of centres' aiming at the highest possible standards in research and training should be established.

(e) There is need to give increased support to research in universities generally. The institutions for the research should, as far as possible, function within the fold of universities, or in intimate association with them.

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(13) Part-time Education and Correspondence Courses

Part-time education and correspondence courses should be developed on a large scale at the university stage. Such facilities should also be developed for secondary school students, for teachers and for agricultural, industrial and other workers. Education through part-time and correspondence courses should be given the same status as full-time education. Such facilities will smoothen transition from school to work, promote the cause of education and provide opportunities to the large number of people who have the desire to educate themselves further but cannot do so on a full-time basis.

(14) Spread of Literacy and Adult Education

(a) The liquidation of mass illiteracy is necessary not only for promoting participation in the working of democratic institutions and for accelerating programmes of production, especially in agriculture, but for quickening the tempo of national development in general. Employees in large commercial, industrial and other concerns should be made functionally literate as early as possible. A lead in this direction should come from the industrial undertakings in the public sector. Teachers and students should be actively involved in organising literacy campaigns, especially as part of the Social and National Service Programme.

(b) Special emphasis should be given to the education of young practising farmers and to the training of youth for self-employment.

(15) Games and Sports

Games and sports should be developed on a large scale with the object of improving the physical fitness and sportmanship of the average as well as of those who excel in the department. Where playing field and other facilities for developing a nation-wide programme of physical education do not exist, these should be provided on a priority basis.

(16) Education of Minorities

Every effort should be made not only to protect the rights of minorities but to promote their educational interests as suggested in the statement issued by the Conference of the Chief Ministers of States and Central Ministers held in August 1961.

(17) The Educational Structure

It will be advantageous to have a broadly uniform educational structure in all parts of the country. The ultimate objective should be to adopt the 10+2+3 pattern, the higher secondary stage of two years being located in schools, colleges or both according to local conditions.

5. The reconstruction of education on the lines indicated above will need

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additional outlay. The aim should be gradually to increase the investment in education so as to reach a level of expenditure of 6 per cent of the national income as early as possible.

6. The Government of India recognises that reconstruction of education is no easy task. Not only are the resources scarce but the problems are exceedingly complex. Considering the key role, which education, science and research play in developing the material and human resources of the country, the Government of India, will in addition to undertaking programme in the Central sector, assist the State Government for the development of programmes of national importance where coordinated action on the part of the States and the Centre is called for.

7. The Government of India will also review, every five years, the progress made and recommend guidelines for future development.

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APPENDIX 2.3

TEXT OF THE NATIONAL POLICY ON EDUCATION, 1986

Part I

Introductory

1.1 Education has continued to evolve, diversify and extend its reach and coverage since the dawn of human history. Every country develops its system of education to express and promote its unique socio-cultural identity and also to meet the challenges of the times. There are moments in history when a new direction has to be given to an age-old process. That moment is today.

1.2 The country has reached a stage in its economic and technical development when a major effort must be made to derive the maximum benefit from the assets already created and to ensure that the fruits of change reach all sections. Education is the highway to that goal.

1.3 With this aim in view, the Government of India announced in January 1985 that a new Education Policy would be formulated for the country. A comprehensive appraisal of the existing educational scene was made, followed by a countrywide debate. The views and suggestions received from different quarters were carefully studied.

The 1968 Education Policy and After

1.4 The National Policy of 1968 marked a significant step in the history of education in Post-Independence India. It aimed to promote national progress, a sense of common citizenship and culture, and to strengthen national integration. It laid stress on the need for a radical reconstruction of the education system, to improve its quality at all stages, and gave much greater attention to science and technology, the cultivation of moral values and a closer relation between education and the life of the people.

1.5 Since the adoption of the 1968 Policy, there has been considerable expansion in educational facilities all over the country at all levels. More than 90 per cent of the country's rural habitations now have schooling facilities within a radius of one kilometre. There has been sizeable augmentation of facilities at other stages also.

1.6 Perhaps the most notable development has been the acceptance of a common structure of education throughout the country and the introduction of the 10+2+3 system by most States. In the school curricula, in addition to laying down a common scheme of studies for boys and girls, science and mathematics were incorporated as compulsory subjects and work experience assigned a place of importance.

1.7 A beginning was also made in the restructuring of courses at the

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undergraduate level. Centres of advanced Studies were set up for post-graduate education and research. And we have been able to meet our requirements of educated manpower.

1.8 While these achievements are impressive by themselves, the general formulations incorporated in the 1968 Policy did not, however, get translated into a detailed strategy of implementation, accompanied by the assignment of specific responsibilities and financial and organisational support. As a result, problems of access, quality, quantity, utility and financial outlay, accumulated over the years, have now assumed such massive proportions that they must be tackled with the utmost urgency.

1.9 Education in India stands at the cross-roads today. Neither normal linear expansion nor the existing pace and nature of improvement can meet the needs of the situation.

1.10 In the Indian way of thinking, a human being is a positive asset and a precious national resource which needs to be cherished, nurtured and developed with tenderness and care, coupled with dynamism. Each individual's growth presents a different range of problems and requirements, at every stage—from the womb to the tomb. The catalytic action of education in this complex and dynamic growth process needs to be planned meticulously and executed with great sensitivity.

1.11 India's political and social life is passing through a phase which poses the danger of erosion to long-accepted values. The goals of secularism, socialism, democracy and professional ethics are coming under increasing strain.

1.12 The rural areas, with poor infrastructure and social services, will not get the benefit of trained and educated youth, unless rural-urban disparities are reduced and determined measures are taken to promote diversification and dispersal of employment opportunities.

1.13 The growth of our population needs to be brought down significantly over the coming decades. The largest single factor that could help achieve this is the spread of literacy and education among women.

1.14 Life in the coming decades is likely to bring new tensions together with unprecedented opportunities. To enable the people to benefit in the new environment will require new designs of human resource development. The coming generations should have the ability to internalise new ideas constantly and creatively. They have to be imbued with a strong commitment to human values and to social justice. All this implies better education.

1.15 Besides, a variety of new challenges and social needs make it imperative for the Government to formulate and implement a new Education Policy for the country. Nothing short of this will meet the situation.

Part II

The Essence and Role of Education

2.1 In our national perception education is essentially for all. This is fundamental to our all-round development—material and spiritual.

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2.2 Education has an acculturating role. It refines sensitivities and perceptions that contribute to national cohesion, a scientific temper and independence of mind and spirit—thus furthering the goals of socialism, secularism and democracy enshrined in our Constitution.

2.3 Education develops manpower for different levels of the economy. It is also the substrate on which research and development flourish, being the ultimate guarantee of national self-reliance.

2.4 In sum, education is a unique investment in the present and the future. This cardinal principle is the key to the National Policy on Education.

Part III

National System of Education

3.1 The Constitution embodies the principles on which the National System of Education is conceived of.

3.2 The concept of a National System of Education implies that, up to a given level, all students, irrespective of caste, creed, location or sex, have access to education of a comparable quality. To achieve this, the Government will initiate appropriately funded programmes. Effective measures will be taken in the direction of the Common School System recommended in the 1968 Policy.

3.3 The National System of Education envisages a common educational structure. The 10+2+3 structure has now been accepted in all parts of the country. Regarding the further break-up of the first 10 years efforts will be made to move towards an elementary system comprising 5 years of primary education and 3 years of upper primary, followed by 2 years of High School.

3.4 The National System of Education will be based on a national curricular framework which contains a common core along with other components that are flexible. The common core will include the history of India's freedom movement, the constitutional obligations and other content essential to nurture national identity. These elements will cut across subject areas and will be designed to promote values such as India's common cultural heritage, egalitarianism, democracy and secularism, equality of the sexes, protection of the environment, removal of social barriers, observance of the small family norm and inculcation of the scientific temper. All educational programmes will be carried on in strict conformity with secular values.

3.5 India has always worked for peace and understanding between nations, treating the whole world as one family. True to this hoary tradition, education has to strengthen this world view and motivate the younger generations for international cooperation and peaceful coexistence. This aspect cannot be neglected.

3.6 To promote equality, it will be necessary to provide for equal opportunity to all not only in access, but also in the conditions for success. Besides, awareness of the inherent equality of all will be created through the core curriculum. The purpose is to remove prejudices and complexes transmitted through the social environment and the accident of birth.

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3.7 Minimum levels of learning will be laid down for each stage of education. Steps will also be taken to foster among students an understanding of the diverse cultural and social systems of the people living in different parts of the country. Besides the promotion of the link language, programmes will also be launched to increase substantially the translation of books from one language to another and to publish multi-lingual dictionaries and glossaries. The young will be encouraged to undertake the rediscovery of India, each in his own image and perception.

3.8 In higher education in general, and technical education in particular, steps will be taken to facilitate inter-regional mobility by providing equal access to every Indian of requisite merit, regardless of his origins. The universal character of universities and other institutions of higher education is to be underscored.

3.9 In the areas of research and development, and education in science and technology, special measures will be taken to establish network arrangements between different institutions in the country to pool their resources and participate in projects of national importance.

3.10 The Nation as a whole will assume the responsibility of providing resource support for implementing programmes of educational transformation, reducing disparities, universalisation of elementary education, adult literacy, scientific and technological research, etc.

3.11 Life-long education is a cherished goal of the educational process. This presupposes universal literacy. Opportunities will be provided to the youth, housewives, agricultural and industrial workers and professionals to continue the education of their choice, at the pace suited to them. The future thrust will be in the direction of open and distance learning.

3.12 The institutions which will be strengthened to play an important role in giving shape to the National System of Education are the University Grants Commission, the All India Council of Technical Education, the Indian Council of Agricultural Research and the Indian Medical Council. Integrated planning will be instituted among all these bodies so as to establish functional linkages and reinforce programmes of research and post-graduate education. These, together with the National Council of Educational Research and Training, the National Institute of Educational Planning and Administration and the International Institute of Science and Technology Education will be involved in implementing the Education Policy.

A Meaningful Partnership

3.13 The Constitutional Amendment of 1976, which includes Education in the Concurrent List, was a far-reaching step whose implications—substantive, financial and administrative—require a new sharing of responsibility between the Union Government and the States in respect of this vital area of national life. While the role and responsibility of the States in regard to education will remain essentially unchanged, the Union Government would accept a larger responsibility to reinforce the national and integrative character of education,

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to maintain quality and standards (including those of the teaching profession at all levels), to study and monitor the educational requirements of the country as a whole in regard to manpower for development, to cater to the needs of research and advanced study, to look after the international aspects of education, culture and Human Resource Development and, in general, to promote excellence at all levels of the educational pyramid throughout the country. Concurrency signifies a partnership which is at once meaningful and challenging; the National Policy will be oriented towards giving effect to it in letter and spirit.

Part IV

Education for Equality

Disparities

4.1 The new policy will lay special emphasis on the removal of disparities and to equalise educational opportunity by attending to the specific needs of those who have been denied equality so far.

Education for Women's Equality

4.2 Education will be used as an agent of basic change in the status of women. In order to neutralise the accumulated distortions of the past, there will be a well-conceived edge in favour of women. The National Education System will play a positive, interventionist role in the empowerment of women. It will foster the development of new values through redesigned curricula, text-books, the training and orientation of teachers, decision-makers and administrators, and the active involvement of educational institutions. This will be an act of faith and social engineering. Women's studies will be promoted as a part of various courses and educational institutions encouraged to take up active programmes to further women's development.

4.3 The removal of women's illiteracy and obstacles inhibiting their access to, and retention in, elementary education will receive overriding priority, through provision of special support services, setting of time targets, and effective monitoring. Major emphasis will be laid on women's participation in vocational, technical and professional education at different levels. The policy of non-discrimination will be pursued vigorously to eliminate sex stereotyping in vocational and professional courses and to promote women's participation in non-traditional occupations, as well as in existing and emergent technologies.

The Education of Scheduled Castes

4.4 The central focus in the SCs educational development is their equalisation with the non-SC population at all stages and levels of education, in all areas and in all the four dimensions—rural male, rural female, urban male and urban female.

4.5 The measures contemplated for this purpose include:

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(i) Incentives to indigent families to send their children to school regularly till they reach the age of 14;
(ii) Pre-matric scholarship scheme for children belonging to families engaged in occupations such as scavenging, flaying and tanning to be made applicable from Class I onwards. All children of such families, regardless of incomes, will be covered by this scheme and time-bound programmes targetted on them will be undertaken;
(iii) Constant micro-planning and verification to ensure that the enrolment, retention and successful completion of courses by SC students do not fall at any stage, and provision of remedial courses to improve their prospects for further education and employment.
(iv) Recruitment of teachers from Scheduled Castes;
(v) Provision of facilities for SC students in students' hostels at district headquarters, according to a phased programme;
(vi) Location of school buildings, Balwadis and Adult Education Centres in such a way as to facilitate full participation of the Scheduled Castes;
(vii) The utilisation of N.R.E.P. and R.L.E.G.P. resources so as to make substantial educational facilities available to the Scheduled Castes; and
(viii) Constant innovation in finding new methods to increase the participation of the Scheduled Castes in the educational process.

The Education of Scheduled Tribes

4.6 The following measures will be taken urgently to bring the Scheduled Tribes on par with others.

(i) Priority will be accorded to opening primary schools in tribal areas. The construction of school buildings will be undertaken in these areas on a priority basis under the normal funds for education, as well as under the NREP, RLEGP, Tribal Welfare Schemes, etc.
(ii) The socio-cultural milieu of the STs has its distinctive characteristics including, in many cases, their own spoken languages. This underlines the need to develop the curricula and devise instructional materials in tribal languages at the initial stages, with arrangements for switching over to the regional language.
(iii) Educated and promising Scheduled Tribe youths will be encouraged and trained to take up teaching in tribal areas.
(iv) Residential schools, including Ashram Schools, will be established on a large scale.
(v) Incentive schemes will be formulated for the Scheduled Tribes, keeping in view their special needs and life styles. Scholarships for higher education will emphasise technical, professional and para-professional courses. Special remedial courses and other programmes to remove psycho-social impediments will be provided to improve their performance in various courses.
(vi) Anganwadis, Non-formal and Adult Education Centres will be opened

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on a priority basis in areas predominantly inhabited by the Scheduled Tribes.

(vii) The curriculum at all stages of education will be designed to create an awareness of the rich cultural identity of the tribal people as also of their enormous creative talent.

Other Educationally Backward Sections and Areas

4.7 Suitable incentives will be provided to all educationally backward sections of society, particularly in the rural areas. Hill and desert districts, remote and inaccessible areas and islands will be provided adequate institutional infra-structure.

4.8 *Minorities* Some minority groups are educationally deprived or backward. Greater attention will be paid to the education of these groups in the interests of equality and social justice. This will naturally include the Constitutional guarantees given to them to establish and administer their own educational institutions, and protection to their languages and culture. Simultaneously, objectivity will be reflected in the preparation of text-books and in all school activities, and all possible measures will be taken to promote an integration based on the appreciation of common national goals and ideals, in conformity with the core curriculum.

4.9 *The Handicapped* The objective should be to integrate the physically and mentally handicapped with the general community as equal partners, to prepare them for normal growth and to enable them to face life with courage and confidence. The following measures will be taken in this regard:

(i) Wherever it is feasible, the education of children with motor handicaps and other mild handicaps will be common with that of others.

(ii) Special schools with hostels will be provided, as far as possible at district headquarters, for the severely handicapped children.

(iii) Adequate arrangements will be made to give vocational training to the disabled.

(iv) Teachers' training programmes will be reoriented, in particular for teachers of primary classes, to deal with the special difficulties of the handicapped children; and

(v) Voluntary effort for the education of the disabled, will be encouraged in every possible manner.

Adult Education

4.10 Our ancient scriptures defined education as that which liberates, i.e. provides the instruments for liberation from ignorance and oppression. In the modern world, it would naturally include the ability to read and write, since that is the main instrument of learning. Hence the crucial importance of adult education, including adult literacy.

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4.11 The critical development issue today is the continuous upgradation of skills so as to produce manpower resources of the kind and the number required by the society. Since participation by beneficiaries in the developmental programmes is of crucial importance, systematic programmes of adult education linked with national goals such as alleviation of poverty, national integration, environmental conservation, energisation of the cultural creativity of the people, observance of small family norm, promotion of women's equality, etc. will be organised and the existing programmes reviewed and strengthened.

4.12 The whole nation must pledge itself to the eradication of illiteracy, particularly in the 15–35 age group. The Central and State Governments, political parties and their mass organisations, the mass media and educational institutions must commit themselves to mass literacy programmes of diverse nature. It will also have to involve on a large scale teachers, students, youth, voluntary agencies, employers, etc. Concerted efforts will be made to harness various research agencies to improve the pedagogical aspects of adult literacy. The mass literacy programme would include, in addition to literacy, functional knowledge and skills, and also awareness among learners about the socio-economic reality and the possibility to change it.

4.13 A vast programme of adult and continuing education will be implemented through various ways and channels, including:

(a) establishment of centres in rural areas for continuing education;
(b) workers' education through the employers, trade unions and concerned agencies of government;
(c) post-secondary education institutions;
(d) wider promotion of books, libraries and reading rooms;
(e) use of radio, TV and films, as mass and group learning media;
(f) creation of learners' groups and organisations;
(g) programmes of distance learnings;
(h) organising assistance in self-learning; and
(i) organising need and interest based vocational training programmes.

Part V

Reorganisation of Education at Different Stages

Early Childhood Care and Education

5.1 The National Policy on Children specially emphasises investment in the development of the young child, particularly children from sections of the population in which first generation learners predominate.

5.2 Recognising the holistic nature of child development, viz., nutrition, health and social, mental, physical, moral and emotional development, Early Childhood Care and Education (ECCE) will receive high priority and be suitably integrated with the Integrated Child Development Services Programme, wherever possible. Day-care centres will be provided as a support service for

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universalisation of primary education, to enable girls engaged in taking care of siblings to attend school and as a support service for working women belonging to poorer sections.

5.3 Programmes of ECCE will be child-oriented, focussed around play and the individuality of the child. Formal methods and introduction of the 3 'R's will be discouraged at this stage. The local community will be fully involved in these programmes.

5.4 A full integration of child care and pre-primary education will be brought about, both as a feeder and a strengthening factor for primary education and for human resource development in general. In continuation of this stage, the School Health Programme will be strengthened.

Elementary Education

5.5 The new thrust in elementary education will emphasise two aspects; (i) universal enrolment and universal retention of children up to 14 years of age, and (ii) a substantial improvement in the quality of education.

5.6 *Child-Centred Approach* A warm, welcoming and encouraging approach, in which all concerned share a solicitude for the needs of the child, is the best motivation for the child to attend school and learn. A child-centred and activity-based process of learning should be adopted at the primary stage. First generation learners should be allowed to set their own pace and be given supplementary remedial instruction. As the child grows, the component of cognitive learning will be increased and skills organised through practice. The policy of non-detention at the primary stage will be retained, making evaluation as disaggregated as feasible. Corporal punishment will be firmly excluded from the educational system and school timings as well as vacations adjusted to the convenience of children.

5.7 *School Facilities* Provision will be made for essential facilities in primary schools, including at least two reasonably large rooms that are usable in all weather, and the necessary toys, blackboards, maps, charts, and other learning material. At least two teachers, one of them a woman, should work in every school, the number increasing as early as possible to one teacher per class. A phased drive, symbolically called 'Operation Blackboard', will be undertaken with immediate effect to improve Primary Schools all over the country. Government, local bodies, voluntary agencies and individuals will be fully involved. Construction of school buildings will be the first charge on NREP and RLEGP funds.

5.8 *Non-Formal Education* A large and systematic programme of non-formal education will be launched for school drop-outs, for children from habitations without schools, working children and girls who cannot attend whole-day schools.

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5.9 Modern technological aids will be used to improve the learning environment of NFE centres. Talented and dedicated young men and women from the local community will be chosen to serve as instructors, and particular attention paid to their training. Steps will be taken to facilitate their entry into the formal system in deserving cases. All necessary measures will be taken to ensure that the quality of non-formal education is comparable with that of formal education.

5.10 Effective steps will be taken to provide a framework for the curriculum on the lines of the national core curriculum, but based on the needs of the learners and related to the local environment. Learning material of high quality will be developed and provided free of charge to all pupils. NFE programmes will provide participatory learning environment, and foster activities such as games and sports, cultural programmes, excursions, etc.

5.11 Much of the work of running NFE centres will be done through voluntary agencies and panchayati raj institutions. The provision of funds to these agencies will be adequate and timely. The Government will take overall responsibility for this vital sector.

5.12 *A Resolve* The New Education Policy will give the highest priority to solving the problem of children dropping out of school and will adopt an array of meticulously formulated strategies based on micro-planning, and applied at the grass-roots level all over the country, to ensure children's retention in school. This effort will be fully coordinated with the network of non-formal education. It shall be ensured that all children who attain the age of about 11 years by 1990 will have had five years of schooling, or its equivalent through the non-formal stream. Likewise, by 1995 all children upto 14 years of age will be provided free and compulsory education.

Secondary Education

5.13 Secondary education begins to expose students to the differentiated roles of science, the humanities and social sciences. This is also an appropriate stage to provide children with a sense of history and national perspective and give them opportunities to understand their constitutional duties and rights as citizens. Conscious internalisation of a healthy work ethos and of the values of a humane and composite culture will be brought about through appropriately formulated curricula. Vocationalisation through specialised institutions or through the refashioning of secondary education can, at this stage, provide valuable manpower for economic growth. Access to secondary education will be widened to cover areas unserved by it at present. In other areas, the main emphasis will be on consolidation.

Pace-setting Schools

5.14 It is universally accepted that children with special talent or aptitude should be provided opportunities to proceed at a faster pace, by making good quality education available to them, irrespective of their capacity to pay for it.

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5.15 Pace-setting schools intended to serve this purpose will be established in various parts of the country on a given pattern, but with full scope for innovation and experimentation. Their broad aims will be to serve the objective of excellence, coupled with equity and social justice (with reservation for SCs and STs), to promote national integration by providing opportunities to talented children largely rural, from different parts of the country to live and learn together, to develop their full potential, and, most importantly, to become catalysts of a nation-wide programme of school improvement. The schools will be residential and free of charge.

Vocationalisation

5.16 The introduction of systematic, well-planned and rigorously implemented programmes of vocational education is crucial in the proposed educational reorganisation. These elements are meant to enhance individual employability, to reduce the mismatch between the demand and supply of skilled manpower, and to provide an alternative for those pursuing higher education without particular interest or purpose.

5.17 Vocational education will be a distinct stream, intended to prepare students for identified occupations spanning several areas of activity. These courses will ordinarily be provided after the secondary stage, but keeping the scheme flexible, they may also be made available after Class VIII. In the interests of integrating vocational education better with their facilities, the Industrial Training Institutes will also conform to the larger vocational pattern.

5.18 Health planning and health service management should optimally interlock with the education and training of appropriate categories of health manpower through health-related vocational courses. Health education at the primary and middle levels will ensure the commitment of the individual to family and community health, and lead to health-related vocational courses at the +2 stage of higher secondary education. Efforts will be made to devise similar vocational courses based on Agriculture, Marketing, Social Services, etc. An emphasis in vocational education will also be on the development of attitudes, knowledge, and skills for entrepreneurship and self-employment.

5.19 The establishment of vocational courses or institutions will be the responsibility of the Government as well as employers in the public and private sectors; the Government will, however, take special steps to cater to the needs of women, rural and tribal students and the deprived sections of society. Appropriate programmes will also be started for the handicapped.

5.20 Graduates of vocational courses will be given opportunities, under predetermined conditions, for professional growth, career improvement and lateral entry into courses of general, technical and professional education through appropriate bridge courses.

5.21 Non-formal, flexible and need-based vocational programmes will also be made available to neoliterates, youth who have completed primary education, school drop-outs, persons engaged in work and unemployed or partially employed persons. Special attention in this regard will be given to women.

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5.22 Tertiary level courses will be organised for the young who graduate from the higher secondary courses of the academic stream and may also require vocational courses.

5.23 It is proposed that vocational courses cover 10 per cent of higher secondary students by 1990 and 25 per cent by 1995. Steps will be taken to see that a substantial majority of the products of vocational courses are employed or become self-employed. Review of the courses offered would be regularly undertaken. The Government will also review its recruitment policy to encourage diversification at the secondary level.

Higher Education

5.24 Higher education provides people with an opportunity to reflect on the critical social, economic, cultural, moral and spiritual issues facing humanity. It contributes to national development through dissemination of specialised knowledge and skills. It is therefore a crucial factor for survival. Being at the apex of the educational pyramid, it has also a key role in producing teachers for the education system.

5.25 In the context of the unprecedented explosion of knowledge, higher education has to become dynamic as never before, constantly entering uncharted areas.

5.26 There are around 150 universities and about 5,000 colleges in India today. In view of the need to effect an all-round improvement in these institutions, it is proposed that, in the near future, the main emphasis will be on the consolidation of, and expansion of facilities in, the existing institutions.

5.27 Urgent steps will be taken to protect the system from degradation.

5.28 In view of the mixed experiences with the system of affiliation, autonomous colleges will be helped to develop in large numbers until the affiliating system is replaced by a freer and more creative association of universities with colleges. Similarly, the creation of autonomous departments within universities on a selective basis will be encouraged. Autonomy and freedom will be accompanied by accountability.

5.29 Courses and programmes will be redesigned to meet the demands of specialisation better. Special emphasis will be laid on linguistic competence. There will be increasing flexibility in the combination of courses.

5.30 State-level planning and coordination of higher education will be done through Councils of Higher Education. The UGC and these Councils will develop coordinative methods to keep a watch on standards.

5.31 Provision will be made for minimum facilities and admission will be regulated according to capacity. A major effort will be directed towards the transformation of teaching methods. Audio-visual aids and electronic equipment will be introduced; development of science and technology curricula and material, research, and teacher orientation will receive attention. This will require preparation of teachers at the beginning of the service as well as continuing education thereafter. Teachers' performance will be systematically assessed. All posts will be filled on the basis of merit.

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5.32 Research in the universities will be provided enhanced support and steps will be taken to ensure its high quality. Suitable mechanisms will be set up by the UGC for coordinating research in the universities, particularly in thrust areas of science and technology, with research undertaken by other agencies. An effort will be made to encourage the setting up of national research facilities within the university system, with proper forms of autonomous management.

5.33 Research in Indology, the humanities and social sciences will receive adequate support. To fulfil the need for the synthesis of knowledge, inter-disciplinary research will be encouraged. Efforts will be made to delve into India's ancient fund of knowledge and to relate it to contemporary reality. This effort will imply the development of facilities for the intensive study of Sanskrit and other Classical languages.

5.34 In the interest of greater coordination and consistency in policy, sharing of facilities and developing inter-disciplinary research, a national body covering higher education in general, agricultural, medical, technical, legal and other professional fields will be set up.

Open University and Distance Learning

5.35 The Open University system has been initiated in order to augment opportunities for higher education and as an instrument of democratising education.

5.36 The Indira Gandhi National Open University, established in 1985 in fulfilment of these objectives, will be strengthened.

5.37 This powerful instrument will have to be developed with care and extended with caution.

Delinking Degrees from Jobs

5.38 A beginning will be made in delinking degrees from jobs in selected areas.

5.39 The proposal cannot be applied to occupation-specific courses like Engineering, Medicine, Law, Teaching, etc. Similarly, the services of specialists with academic qualifications in the humanities, social sciences, sciences, etc. will continue to be required in various job positions.

5.40 Delinking will be applied in services for which a university degree need not be a necessary qualification. Its implementation will lead to a refashioning of job-specific courses and afford greater justice to those candidates who, despite being equipped for a given job, are unable to get it because of an unnecessary preference for graduate candidates.

5.41 Concomitant with delinking, an appropriate machinery, such as a National Testing Service, will be established, in appropriate phases, to conduct tests on a voluntary basis to determine the suitability of candidates for specified jobs and to pave the way for the emergence of norms of comparable competence across the nation.

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Rural University

5.42 The new pattern of the Rural University will be consolidated and developed on the lines of Mahatma Gandhi's revolutionary ideas on education so as to take up the challenges of micro-planning at grass-roots levels for the transformation of rural areas. Institutions and programmes of Gandhian basic education will be supported.

Part VI

Technical and Management Education

6.1 Although the two streams of technical and management education are functioning separately, it is essential to look at them together, in view of their close relationship and complementary concerns. The reorganisation of Technical and Management Education should take into account the anticipated scenario by the turn of the century, with specific reference to the likely changes in the economy, social environment, production and management processes, the rapid expansion of knowledge and the great advances in science and technology.

6.2 The infrastructure and services sectors as well as the unorganised rural sector also need a greater induction of improved technologies and a supply of technical and managerial manpower. This will be attended to by the Government.

6.3 In order to improve the situation regarding manpower information, the recently set up Technical Manpower Information System will be further developed and strengthened.

6.4 Continuing education, covering established as well as emerging technologies, will be promoted.

6.5 As computers have become important and ubiquitous tools, a minimal exposure to computers and a training in their use will form part of professional education. Programmes of computer literacy will be organised on wide scale from the school stage.

6.6 In view of the present rigid entry requirements to formal courses restricting the access of a large segment of people to technical and managerial education, programmes through a distance-learning process, including use of the mass media, will be offered. Technical and management education programmes, including education in polytechnics, will also be on a flexible modular pattern based on credits, with provision for multi-point entry. A strong guidance and counselling service will be provided.

6.7 In order to increase the relevance of management education, particularly in the non-corporate and under-managed sectors, the management education system will study and document the Indian experience and create a body of knowledge and specific educational programmes suited to these sectors.

6.8 Appropriate formal and non-formal programmes of technical education will be devised for the benefit of women, the economically and socially weaker sections, and the physically handicapped.

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6.9 The emphasis on vocational education and its expansion will need a large number of teachers and professionals in vocational education, educational technology, curriculum development, etc. Programmes will be started to meet this demand.

6.10 To encourage students to consider "self-employment" as a career option, training in entrepreneurship will be provided through modular or optional courses, in degree or diploma programmes.

6.11 In order to meet the continuing needs of updating curriculum, renewal should systematically phase out obsolescence and introduce new technologies or disciplines.

Institutional Thrusts

6.12 Some polytechnics in the rural areas have started training weaker groups in those areas for productive occupations through a system of community polytechnics. The community polytechnic system will be appraised and appropriately strengthened to increase its quality and coverage.

Innovation, Research and Development

6.13 Research as a means of renovation and renewal of educational processes will be undertaken by all higher technical institutions. It will primarily aim at producing quality manpower capable of taking up R&D functions. Research for development will focus on improving present technologies, developing new indigenous ones and enhancing production and productivity. A suitable system for watching and forecasting technology will be set up.

6.14 The scope for cooperation, collaboration and networking relationships between institutions at various levels and with the user systems will be utilised. Proper maintenance, and an attitude of innovation and improvement will be promoted systematically.

Promoting Efficiency and Effectiveness at all Levels

6.15 As technical and management education is expensive, the following major steps will be taken for cost-effectiveness and to promote excellence:

(i) High priority will be given to modernisation and removal of obsolescence. However, modernisation will be undertaken to enhance functional efficiency and not for its own sake or as a status symbol.

(ii) Institutions will be encouraged to generate resources using their capacities to provide services to the community and industry. They will be equipped with up-to-date learning resources, library and computer facilities.

(iii) Adequate hostel accommodation will be provided, especially for girls. Facilities for sports, creative work and cultural activities will be expanded.

(iv) More effective procedures will be adopted in the recruitment of staff.

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Career opportunities, service conditions, consultancy norms and other requisites will be improved.

(v) Teachers will have multiple roles to perform: teaching, research, development of learning resource material, extension, and managing the institution. Initial and in-service training will be made mandatory for faculty members and adequate training reserves will be provided. Staff Development Programmes will be integrated at the State, and coordinated at Regional and National levels.

(vi) The curricula of technical and management programmes will be targetted on current as well as the projected needs of industry or user systems. Active interaction between technical or management institutions and industry will be promoted in programme planning and implementation, exchange of personnel, training facilities and resources, research and consultancy and other areas of mutual interest.

(vii) Excellence in performance of institutions and individuals will be recognised and rewarded. The emergence of substandard institutions will be checked. A climate conducive to excellence and innovation will be promoted with full involvement of the faculty.

(viii) Select institutions will be awarded academic, administrative and financial autonomy of varying degrees, building in safeguards with respect to accountability.

(ix) Networking systems will have to be established between technical education and industry, R&D organisations, programmes of rural and community development, and with other sectors of education with complementary characteristics.

Management Functions and Change

6.16 In view of the likely emergence of changes in management systems and the need to equip students with the ability to cope with them, effective mechanisms will be devised to understand the nature and direction of change *per se* and to develop the important skill of managing change.

6.17 In view of the integrated nature of the task, the Ministry of Human Resource Development will coordinate the balanced development of engineering, vocational and management education as well as the education of technicians and craftsmen.

6.18 Professional societies will be encouraged and enabled to perform their due role in the advancement of technical and management education.

6.19 The All India Council for Technical Education will be vested with statutory authority for the planning, formulation and maintenance of norms and standards, accreditation, funding of priority areas, monitoring and evaluation, maintaining parity of certification and awards and ensuring the coordinated and integrated development of technical and management education. Mandatory periodic evaluation will be carried out by a duly constituted Accreditation Board.

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6.20 In the interests of maintaining standards and for several other valid reasons, the commercialisation of technical and professional education will be curbed. An alternative system will be devised to involve private and voluntary effort in this sector of education, in conformity with accepted norms and goals.

Part VII

Making the System Work

7.1 It is obvious that these and many other new tasks of education cannot be performed in a state of disorder. Education needs to be managed in an atmosphere of utmost intellectual rigour, seriousness of purpose and, at the same time, of the freedom essential for innovation and creativity. While far-reaching changes will have to be incorporated in the quality and range of education, the process of introducing discipline into the system will have to be started, here and now, in what exists.

7.2 The country has placed boundless trust in the educational system. The people have a right to expect concrete results. The first task is to make it work. All teachers should teach and all students study.

7.3 The strategy in this behalf will consist of:

(a) a better deal to teachers with greater accountability;
(b) provision of improved students' services and insistence on observance of acceptable norms of behaviour;
(c) provision of better facilities to institutions; and
(d) creation of a system of performance appraisals of institutions according to standards and norms set at the National or State levels.

Part VIII

Reorienting the Content and Process of Education

The Cultural Perspective

8.1 The existing schism between the formal system of education and the country's rich and varied cultural traditions needs to be bridged. The preoccupation with modern technologies cannot be allowed to sever our new generations from the roots in India's history and culture. Deculturisation, dehumanisation and alienation must be avoided at all costs. Education can and must bring about the fine synthesis between change-oriented technologies and the country's continuity of cultural tradition.

8.2 The curricula and processes of education will be enriched by cultural content in as many manifestations as possible. Children will be enabled to develop sensitivity to beauty, harmony and refinement. Resource persons in the community, irrespective of their formal educational qualifications, will be invited to contribute to the cultural enrichment of education, employing both the literate and oral traditions of communication. To sustain and carry forward

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the cultural tradition, the role of old masters, who train pupils through traditional modes will be supported and recognised.

8.3 Linkages will be established between the university system and institutions of higher learning in art, archaeology, oriental studies etc. Due attention will also be paid to the specialised disciplines of Fine Arts, Museology, Folklore etc. Teaching, training and research in these disciplines will be strengthened so as to replenish specialised manpower in them.

Value Education

8.4 The growing concern over the erosion of essential values and an increasing cynicism in society has brought to focus the need for readjustments in the curriculum in order to make education a forceful tool for the cultivation of social and moral values.

8.5 In our culturally plural society, education should foster universal and eternal values, oriented towards the unity and integration of our people. Such value education should help eliminate obscurantism, religious fanaticism, violence, superstition and fatalism.

8.6 Apart from this combative role, value education has a profound positive content, based on our heritage, national goals universal perceptions. It should lay primary emphasis on this aspect.

Languages

8.7 The Education Policy of 1968 had examined the question of the development of languages in great detail; its essential provisions can hardly be improved upon and are as relevant today as before. The implementation of this part of the 1968 Policy has, however, been uneven. The Policy will be implemented more energetically and purposefully.

Books and Libraries

8.8 The availability of books at low prices is indispensable for people's education. Efforts will be made to secure easy accessibility to books for all segments of the population. Measures will be taken to improve the quality of books, promote the reading habit and encourage creative writing. Authors' interests will be protected. Good translations of foreign books into Indian languages will be supported. Special attention will be paid to the production of quality books for children, including text-books and workbooks.

8.9 Together with the development of books, a nation-wide movement for the improvement of existing libraries and the establishment of new ones will be taken up. Provision will be made in all educational institutions for library facilities and the status of librarians improved.

Media and Educational Technology

8.10 Modern communication technologies have the potential to bypass several stages and sequences in the process of development encountered in earlier

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decades. Both the constraints of time and distance at once become manageable. In order to avoid structural dualism, modern educational technology must reach out to the most distant areas and the most deprived sections of beneficiaries simultaneously with the areas of comparative affluence and ready availability.

8.11 Educational technology will be employed in the spread of useful information, the training and re-training of teachers, to improve quality, sharpen awareness of art and culture, inculcate abiding values, etc., both in the formal and non-formal sectors. Maximum use will be made of the available infrastructure. In villages without electricity, batteries or solar packs will be used to run the programme.

8.12 The generation of relevant and culturally compatible educational programmes will form an important component of educational technology, and all available resources in the country will be utilised for this purpose.

8.13 The media have a profound influence on the minds of children as well as adults; some of them tend to encourage consumerism, violence, etc. and have a deleterious effect. Radio and TV programmes which clearly militate against proper educational objectives will be prevented. Steps will be taken to discourage such trends in films and other media also. An active movement will be started to promote the production of children's films of high quality and usefulness.

Work Experience

8.14 Work experience, viewed as purposive and meaningful manual work, organised as an integral part of the learning process and resulting in either goods or services useful to the community, is considered as an essential component at all stages of education, to be provided through well-structured and graded programmes. It would comprise activities in accord with the interests, abilities and needs of students, the level of skills and knowledge to be upgraded with the stages of education. This experience would be helpful on his entry into the workforce. Pre-vocational programmes provided at the lower secondary stage will also facilitate the choice of the vocational courses at the higher secondary stage.

Education and Environment

8.15 There is a paramount need to create a consciousness of the environment. It must permeate all ages and all sections of society, beginning with the child. Environmental consciousness should inform teaching in schools and colleges. This aspect will be integrated in the entire educational process.

Teaching of Mathematics

8.16 Mathematics should be visualised as the vehicle to train a child to think, reason, analyse and to articulate logically. Apart from being a specific subject, it should be treated as a concomitant to any subject involving analysis and reasoning.

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8.17 With the recent introduction of computers in schools, educational computing and the emergence of learning through the understanding of cause-and-effect relationships and the interplay of variables, the teaching of mathematics will be suitably redesigned to bring it in line with modern technological devices.

Science Education

8.18 Science education will be strengthened so as to develop in the child well defined abilities and values, such as the spirit of inquiry, creativity, objectivity, the courage to question, and an aesthetic sensibility.

8.19 Science education programmes will be designed to enable the learner to acquire problem-solving and decision-making skills and to discover the relationship of science with health, agriculture, industry and other aspects of daily life. Every effort will be made to extend science education to the vast numbers who have remained outside the pale of formal education.

Sports and Physical Education

8.20 Sports and physical education are an integral part of the learning process, and will be included in the evaluation of performance. A nation-wide infrastructure for physical education, sports and games will be built into the educational edifice.

8.21 The infrastructure will consist of playfields, equipment, coaches and teachers of physical education as part of the School Improvement Programme. Available open spaces in urban areas will be reserved for playgrounds, if necessary by legislation. Efforts will be made to establish sports institutions and hostels where specialised attention will be given to sports activities and sports-related studies, along with normal education. Appropriate encouragement will be given to those talented in sports and games. Due stress will be laid on indigenous traditional games. As a system which promotes an integrated development of the body and mind, *yoga* will receive special attention. Efforts will be made to introduce *yoga* in all schools; to this end, it will be introduced in teacher training courses.

The Role of Youth

8.22 Opportunities will be provided for the youth to involve themselves in national and social development through educational institutions and outside them. Students will be required to participate in one or the other of existing schemes, namely, the National Service Scheme, National Cadet Corps, etc. Outside the institutions, the youth will be encouraged to take up programmes of development, reform and extension. The National Service Volunteer Scheme will be strengthened.

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The Evaluation Process and Examination Reform

8.23 Assessment of performance is an integral part of any process of learning and teaching. As part of sound educational strategy, examinations should be employed to bring about qualitative improvements in education.

8.24 The objective will be to re-cast the examination system so as to ensure a method of assessment that is a valid and reliable measure of student development and a powerful instrument for improving teaching and learning. In functional terms, this would mean:

(i) The elimination of an excessive element of chance and subjectivity;
(ii) The de-emphasis of memorisation;
(iii) Continuous and comprehensive evaluation that incorporates both scholastic and non-scholastic aspects of education, spread over the total span of instructional time;
(iv) Effective use of the evaluation process by teachers, students and parents.
(v) Improvement in the conduction of examinations;
(vi) The introduction of concomitant changes in instructional materials and methodology;
(vii) Introduction of the semester system from the secondary stage in a phased manner; and
(viii) The use of grades in place of marks.

8.25 The above goals are relevant both for external examinations and evaluation within educational institutions. Evaluation at the institutional level will be streamlined and the predominance of external examinations reduced.

Part IX

The Teacher

9.1 The status of the teacher reflects the socio-cultural ethos of a society; it is said that no people can rise above the level of its teachers. The Government and the community should endeavour to create conditions which will help motivate and inspire teachers on constructive and creative lines. Teachers should have the freedom to innovate, to devise appropriate methods of communication and activities relevant to the needs and capabilities of and the concerns of the community.

9.2 The methods of recruiting teachers will be reorganised to ensure merit, objectivity and conformity with spatial and functional requirements. The pay and service conditions of teachers have to be commensurate with their social and professional responsibilities and with the need to attract talent to the profession. Efforts will be made to reach the desirable objective of uniform emoluments, service conditions and grievance-removal mechanisms for teachers throughout the country. Guidelines will be formulated to ensure objectivity in

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the postings and transfers of teachers. A system of teacher evaluation—open, participative and data-based—will be created and reasonable opportunities of promotion to higher grades provided. Norms of accountability will be laid down with incentives for good performance and disincentives for non-performance. Teachers will continue to play a crucial role in the formulation and implementation of educational programmes.

9.3 Teachers' associations must play a significant role in upholding professional integrity, enhancing the dignity of the teacher and in curbing professional misconduct. National level associations of teachers could prepare a Code of Professional Ethics for Teachers and see to its observance.

Teacher Education

9.4 Teacher education is a continuous process, and its pre-service and in-service components are inseparable. As the first step, the system of teacher education will be overhauled.

9.5 The new programmes of teacher-education will emphasise continuing education and the need for teachers to meet the thrusts envisaged in this Policy.

9.6 District Institutes of Education and Training (DIET) will be established with the capability to organise pre-service and in-service courses for elementary school teachers and for the personnel working in non-formal and adult education. As DIETs get established, sub-standard institutions will be phased out. Selected Secondary Teacher Training Colleges will be upgraded to complement the work of State Councils of Educational Research and Training. The National Council of Teacher Education will be provided the necessary resources and capability to accredit institutions of teacher-education and provide guidance regarding curricula and methods. Networking arrangements will be created between institutions of teacher education and university departments of education.

Part X

The Management of Education

10.1 An overhaul of the system of planning and the management of education will receive high priority. The guiding considerations will be:

(a) Evolving a long-term planning and management perspective of education and its integration with the country's developmental and manpower needs;
(b) Decentralisation and the creation of a spirit of autonomy for educational institutions;
(c) Giving pre-eminence to people's involvement, including association of non-governmental agencies and voluntary effort;
(d) Inducting more women in the planning and management of education; and
(e) Establishing the principle of accountability in relation to given objectives and norms.

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National Level

10.2 The Central Advisory Board of Education will play a pivotal role in reviewing educational development, determining the changes required to improve the system and monitoring implementation. It will function through appropriate Committees and other mechanisms created to ensure contact with, and coordination among, the various areas of Human Resource Development. The Departments of Education at the Centre and in the States will be strengthened through the involvement of professionals.

Indian Education Service

10.3 A proper management structure in education will entail the establishment of the Indian Education Service as an All-India Service. It will bring a national perspective to this vital sector. The basic principles, functions and procedures of recruitment to this service will be decided in consultation with the State Governments.

State Level

10.4 State Governments may establish State Advisory Boards of Education on the lines of CABE. Effective measures should be taken to integrate mechanisms in the various State Departments concerned with Human Resource Development.

10.5 Special attention will be paid to the training of educational planners, administrators and heads of institutions. Institutional arrangements for this purpose should be set up in stages.

District and Local Level

10.6 District Boards of Education will be created to manage education upto the higher secondary level. State Governments will attend to this aspect with all possible expedition. Within a multi-level framework of educational development, Central, State, District and Local level agencies will participate in planning, coordination, monitoring and evaluation.

10.7 A very important role must be assigned to the head of an educational institution. Heads will be specially selected and trained. School complexes will be promoted on a flexible pattern so as to serve as networks of institutions and synergic alliances to encourage professionalism among teachers, to ensure observance of norms of conduct and to enable the sharing of experiences and facilities. It is expected that a developed system of school complexes will take over much of the inspection functions in due course.

10.8 Local communities, through appropriate bodies, will be assigned a major role in programmes of school improvement.

Voluntary Agencies and Aided Institutions

10.9 Non-government and voluntary effort including social activist groups will be encouraged, subject to proper management, and financial assistance provided.

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At the same time, steps will be taken to prevent the establishment of institutions set up to commercialise education.

Part XI

Resources and Review

11.1 The Education Commission of 1964–66, the National Education Policy of 1968 and practically all others concerned with education have stressed that the egalitarian goals and the practical, development-oriented objectives of Indian society can be realised only by making investments in education of an order commensurate with the nature and dimensions of the task.

11.2 Resources, to the extent possible, will be raised by mobilising donations, asking the beneficiary communities to maintain school buildings and supplies of some consumables, raising fees at the higher levels of education and effecting some savings by the efficient use of facilities. Institutions involved with research and the development of technical and scientific manpower should also mobilise some funds by levying a cess or charge on the user agencies, including Government departments, and entrepreneurs. All these measures will be taken not only to reduce the burden on State resources but also for creating a greater sense of responsibility within the educational system. However, such measures will contribute only marginally to the total funding. The Government and the community in general will find funds for such programmes as: the universalisation of elementary education; liquidating illiteracy; equality of access to educational opportunities to all sections throughout the country; enhancing the social relevance, quality and functional effectiveness of educational programmes; generating knowledge and developing technologies in scientific fields crucial to self-sustaining economic development; and creating a critical consciousness of the values and imperatives of national survival.

11.3 The deleterious consequences of non-investment or inadequate investment in education are indeed very serious. Similarly, the cost of neglecting vocational and technical education and of research is also unacceptable. Sub-optimal performance in these fields could cause irreparable damage to the Indian economy. The network of institutions set up from time to time since Independence to facilitate the application of science and technology would need to be substantially and expeditiously updated, since they are fast becoming obsolete.

11.4 In view of these imperatives, education will be treated as a crucial area of investment for national development and survival. The National Policy on Education, 1968, had laid down that the investment on education be gradually increased to reach a level of expenditure of 6 per cent of the national income as early as possible. Since the actual level of investment has remained far short of that target, it is important that greater determination be shown now to find the funds for the programmes laid down in this Policy. While the actual requirements will be computed from time to time on the basis of monitoring and review, the outlay on education will be shaped up to the extent essential for

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policy implementation in the Seventh Plan. It will be ensured that from the Eighth Five-Year Plan onwards, it will uniformly exceed to 6 per cent of the national income.

Review

11.5 The implementation of the various parameters of the New Policy must be reviewed every five years. Appraisals at short intervals will also be made to ascertain the progress of implementation and the trends emerging from time to time.

Part XII

The Future

12.1 The future shape of education in India is too complex to envision with precision. Yet, given our tradition which has almost always put a high premium on intellectual and spiritual attainment, we are bound to succeed in achieving our objectives.

12.2 The main task is to strengthen the base of the pyramid, which might come close to a billion people at the turn of the century. Equally, it is important to ensure that those at the top of the pyramid are among the best in the world. Our cultural well-springs had taken good care of both ends in the past; the skew set in with foreign domination and influence. It should now be possible to further intensify the nation-wide effort in Human Resource Development, with Education playing its multi-faceted role.

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3

NATIONAL ELECTRONICS POLICY

INTRODUCTION

Electronics occupies a key position in modern science and technology. It has a vital role to play in the fields of atomic energy, communications, defence, education, entertainment and space technology. In view of its dynamic character, all-pervasive nature and significant impact on science, industry and society, electronics, has now achieved the status of an essential complementarity in the overall scheme of utilisation of country's economic resources. From a cinderella on the economic scene, the electronics industry has now acquired a position in its own right. Over the years, the industry has grown enormously sharing the broad features of other growth oriented modern industries, namely, constant expansion of capacities, and built-in measures for constant sophistication through research and large investment.

Realising the important role of electronics in the national development and its usefulness in all the major sectors of economy, the Government of India set up a separate Department of Electronics in 1970. The Electronics Commission was constituted in February, 1971 with the main responsibility to review the entire field of electronics with regard to research, development and industrial operation. The Commission is responsible, amongst other things, for formulating policies for integrated and coordinated development of electronics, and to review the actual growth in industrial and R&D capabilities, to generate information and planning inputs for related matters including for manpower requirement and to function as a focal point for inter-ministerial coordination of policy matters.

THE INTERNATIONAL SCENE

Electronics is the most versatile technology of the present day world. There is virtually nothing it cannot do—and do it fast, at incredibly low cost. Today, there is no field of human endeavour, be it industry, commerce, defence, space, energy, education, medicine, communication, entertainment, and so on, that does not derive its strength and sustenance from this vital branch of science and technology. Within just four decades of the invention of the transistor in 1946, followed by the integrated circuit in 1960; and the miracle chip of the 1980s, the LSI and VLSI, this wonder technology of the twentieth century has, almost single-handed, transformed the face of the modern world and shrunk it within a milli-second of instant communication face to face, if you so like.

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The world is passing today through yet another electronics revolution which is leading to convergence of three major technologies—computer; communication and micro-electronics. Indeed the marriage between computer and communication is the marriage of the twentieth century, and its offspring will take the world to hitherto undreamt of heights of human achievements. Already, over the last decade, not only has equipment become smaller in size, but also its cost has significantly reduced. This trend towards miniaturisation and falling costs in electronics continues unabated and gives a renewed hope to mankind, otherwise plagued by continually increasing prices, all round. In 1985, the global electronics production was around 300 billion US dollars. According to one estimate, electronics production, world over, will overtake all other industrial production, put together, in just a decade.

THE INDIAN SCENE

Recognising the significant contribution that electronics can make towards improvement in productivity, efficiency, safety, cost and quality of life, the Seventh Five-Year Plan envisages rapid introduction of electronics in almost all sectors of economy. The technological developments in most of the industrial and service sectors will also demand much greater usage of electronics, Communication sector's expansion is now largely based on electronics using the contemporary digital technology. The manufacture of Electronic Switching Systems (ESS) has already started and a few more units will be added in the coming years. In other areas also digitisation is being introduced at a rapid rate. A dedicated Centre for Development of Telematics (CDOT) has been set up to produce indigenous digital electronic switching system. The convergence of computers and communications has started playing a significant role in redefining the telecommunication industry. Digital technology has eliminated the distinction between voice and non-voice services enabling composite signals to be carried in a common digital bit stream.

Power generation and transmission networks are making increasing use of electronics. More electronic control and instrumentation systems are being introduced in Thermal Power Plants. For power transmission, an experimental line based on High Voltage Direct Current (HVDC) technology using high power thyrister controls is being laid out. Operations of steel plants are being optimised through the introduction of on-line computers for more effective and dynamic control and monitoring of the different units of the plant. Benefits of electronics have already been demonstrated in sugar mills. These are being extended further to cover most of the sugar mills in the country. Model coal mines using electronic equipment for communication, safety and other activities are being set up. Electronification is expected to change radically the organisational and physical set up of coal mines in the country. Other capital intensive sectors where programmes for electronification are underway are fertilisers, oil exploration and production and textiles. Electronics in industrial machinery

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will see a major growth from simple add-on of electronic modules to machinery robots, and flexible manufacturing systems being used both to improve the quality of the end products as well as to remain competitive in international market.[1]

The application of electronics for the upgradation of the service sector in the country is a new dimension. Computers have been introduced in Banking operations, Railways (passenger reservation, wagon movement optimization, etc.) and instant reservation on Airlines. In the health sector, electronic diagnostic applications are widely used. The extension of communication and broadcasting services to the rural population is expected to assist substantially the programme for rural development. Timely information is a vital input to the planning and the executing agencies. The national information set-up based on computerisation will be extended right upto the district level to facilitate exchange of information on monitoring and implementation of schemes and for timely collection of various statistics on economic performance.

With the growth of the computing industry, computers and microprocessor based systems are easily available now in the country at relatively low prices. Large numbers of computer systems, mainly micros and minis, have been procured by scientific, business and industrial organisations for information storage and handling. Consequently, sharing of information distributed over various locations is becoming essential, and the need for communication among different computers is being felt very strongly.[2]

PRIME MINISTER'S CONCERN FOR ELECTRONICS

In a drive for electronics the Prime Minister, Shri Rajiv Gandhi, has expressed opinion that we should be determined to see that India does not miss the electronics revolution. The Government's expectation is that the Electronics Commission will put India on the Electronics map of the world with a production of at least Rs. 10,000 crore worth electronic goods in the next five years, which will give large employment and offer an enormous potential for improving quality and skills of jobs all around. Besides, power consumption will be low and the risk of pollution very little.

On February 21, 1985, the Prime Minister while inaugurating a seminar in New Delhi on "Investment Opportunities in Electronics" organised by the All-India Manufacturers Organisation (AIMO) expressed the view that electronics was critical for India's growth and said: "Electronics is really like the nervous system of a nation; and as a nation evolves, that nervous system must also evolve." He suggested that electronics should be used to supplement the other industries and it should be an aid in modernising the older industries and making them more productive and competitive. He said India was still lagging

[1] Government of India, Department of Electronics, *Annual Report*, 1986–87, pp. 1–2.
[2] *Ibid.*, p. 2.

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far behind in this important field. While the blame was normally put on the government's policies for this, many a time the concessions extended to the industry failed to benefit the consumer. The Prime Minister called upon the industry to be more dynamic.

He was of the view that in order to get electronics really moving in India, there should be enough people to deal with the equipment that would be produced. This called for a change in the education system.

Shri Gandhi felt that there was a wide gap in the demand and supply of electronic items in the country. He called upon the private sector to participate in it in a big way. He assured the private corporate sector that the licensing and other procedures in this regard would be streamlined.

On 16 January, 1987, while inaugurating the 30th annual convention of the "Institution of Electronics and Telecommunication Engineers" in New Delhi, the Prime Minister said that the Government would revolutionise the electronics industry so as to bring it into the frontline of the world technology. For this purpose he laid emphasis on the following three essential steps:

(i) boosting the low volumes of production which had resulted in high prices;
(ii) ensuring quality products at reasonable prices; and
(iii) the attainment of a judicious mix of imported and indigenous technologies.

Regretting the inability of the industry to further improve the imported technology through R&D, Shri Gandhi said the industry had fallen into the pitfall of repeatedly importing technologies and living with them. There was no desire to further improve upon them. He advised the industry to inculcate the "revolutionary attitude and become masters of the technology". In this connection, he pointed out that efforts should be made to achieve technological self-reliance.

The Prime Minister expressed the views that the ultimate goal should be to provide the customer with quality products and also to develop technologies in the frontier areas. He admitted that, at times, the government procedures were so cumbersome that by the time any new project was approved, its technology became outdated. This acted as a damper on the industry. However, attempts would now be made to simplify these procedures, he added.

POLICY MEASURES IN ELECTRONICS

The production of electronics in India has increased by fivefold over the past decade. During 1987, the production was worth Rs. 4720 crore and in 1988, it had reached to a level of Rs. 6300 crore. It is estimated that about 30 per cent of our requirement excluding the defence sector are being met through imports. Thus, requirements and the capacity of the economy to absorb electronics

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goods is much larger than what is being produced in the country at present. Other factors such as its potential for productivity improvement, its essentiality for quality and safety, its superiority in information processing, etc. have led to the decision to accord a very high priority for electronics.

Detailed studies have been carried out regarding the potential demand for the various sectors in electronics. For the benefit of the industry, these are being serialised in the monthly journal "Electronics—Information & Planning". Studies have also been conducted to determine the priorities for Research & Development and areas of excellence have been identified. Significant investments have been made in LSI/VLSI production and design, switching system development, etc.

With this as the background, the Department of Electronics has drawn the Seventh Five-Year Plan for Electronics. To have an idea of the scope for development, the actual production in 1988 and the planned production in 1989–90 is shown in Table 3.1.*

Table 3.1
Electronics Production

(Rs. in crores)

Sector	*Production 1988*	*Estimated Production (1989–90)*
1. Components	1025	2100
2. Consumer Electronics	2400	2000
3. Communication & Broadcasting	900	3340
4. Aerospace and Defence	390	540
5. Control Instrumentation and Industrial Electronics	935	2010
6. Computers and Office Equipment	486	870
7. Export Processing Zones	164	. .
Total	6300	10,860

The industry during the Seventh Plan is targeted to grow at an average annual growth rate of over 35 per cent. This is over fivefold increase in 5-years and thus opening a vast opportunity for growth.

To achieve the projected growth, and to create an environment conducive for investments in production, research and development, manpower development and associated areas, certain policies** have been formulated and announced over the past few years. A discussion on the policies and their implementation is given below:

* Government of India, Department of Electronics, *Annual Report* 1988–89, p. 58.
** For details of policies please *see* Appendices 3.1 to 3.5.

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Capacity Creation

Creation of industrial capacity will be based on techno-economic viability and production at near international cost and quality. While there may be restrictions on lower capacity limits, in general, there will no upper limit on capacity except where, in the opinion of the Government, excess capacity may lead to its under-utilisation or non-utilisation after taking into account domestic requirement and potential for export.[1]

The following conditions will apply for creation of capacity:

(i) A minimum investment in production machinery and test equipment, etc. will be specified from time to time for a product or a group of products.
(ii) Liberal growth of capacity will be permitted on achieving satisfactory utilisation of existing capacity. Higher capacities will also be permissible for better economies of scale in appropriate cases.
(iii) Imports will be governed by import policy in force. Import of assemblies/sub-assemblies/populated PCB's will not be normally permitted.

Broad-Band Licences

In the following areas, fresh capacity approvals will be issued covering a number of items:

(i) Entertainment audio products covering radio receivers, the recorders, record players, record changers, amplifiers excluding those reserved for Small Scale and their combination with or without digital clocks.
(ii) Entertainment video products covering black and white TV receivers, colour TV receivers and their combination with radio, tape recorder, digital clocks but excluding VCR/VCP, subject to TV policy in force. Electronic toys and games (other than radio controlled).
(iii) Computer peripherals.
(iv) Electronics test and measuring instruments.
(v) Discrete semiconductor devices.

Broad banding in the case of black & white and colour TV receivers in respect of foreign equity companies will be subject to licensing policy in force from time to time.

Delicensing

Electronic components have been delicensed. Notification in this regard has been issued by the Ministry of Industry & Company Affairs.

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[1] Government of India, Department of Electronics, *Investment in Electronics: Guidelines for Enterprises*, 1986, p. 1.

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Phased Manufacturing Programme (PMP)

The purpose of examination of the phased manufacturing programme (PMP) is:

(i) To ensure setting up of appropriate production facility.
(ii) To encourage technology adaptation through appropriate use of locally manufactured products, parts, components, etc. and to discourage undue dependence on imports merely because imports are permissible.

The following minimum information is to be given while submitting PMP:

(i) Installed capacity year-wise for 2–3 years (as proposed) and its relationship with the licensed/approved capacity. Investment phasing for achieving the licensed capacity.
(ii) Statement of compliance with mandatory requirement, if any, regarding minimum investment in production machinery.
(iii) List of imported items (including items on OGL) and suitable justification for proposing imports—year-wise for 2–3 years.
(iv) Imports will be governed by import policy in force. However, submission of PMP is required for all new projects and for all expansion/diversification of existing units.[4]

Import of Technology and Foreign Collaboration (Technical)

Import of technology and foreign collaboration is permissible in all areas of electronics. Foreign collaboration approvals will be issued on examination for satisfaction of the following criteria:

(i) Technology is not readily available to the party within the country.
(ii) Technology is contemporary and appropriate for the country.
(iii) The technology offers end-products at near international prices.
(iv) Establishment of R&D base to absorb the imported technology. Repeated import of complete technology is not allowed.

Central Technology Acquisition

For certain items, to be determined from time to time, government may decide to acquire technology on a centralised basis, only if a variety of technologies render the indigenous product costly in comparison to international prices. In such cases, suitable press notes will be issued specifying the items, scope of technology, terms of transfer, etc.

Presently, the following items are covered under such centralised acquisition of technology:

(i) Telephone instruments.
(ii) Electronic PABX systems.

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[4] *Ibid.*, p. 2.

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Foreign Investment

The following areas in electronics are open for majority foreign investments (either existing companies or fresh more than 40 per cent foreign equity):

(i) Electronic components.
(ii) Materials (for electronic industry).
(iii) Closely-held high technology items in other sectors of electronics industry.

Foreign equity holdings upto 40 per cent will normally be allowed in most areas of electronics on merit.

Location

Electronic units are allowed to be established in any permissible location excluding standard urban areas of metropolitan cities having population of 1 million and above and municipal areas having population of 5 lakh and above as per 1981 census.

The hill areas in the special region districts are eligible for higher quantum of central subsidy.

Exemptions under MRTP Act

Necessary notification giving exemption of certain electronic items under MRTP Act is available. Items covered/to be covered are:

(i) Electronic components (other than specified types of integrated circuits, viz. VLSI & LSI).
(ii) Computer peripherals.
(iii) Computer software.
(iv) Magnetic tapes for use in computer, video equipment.
(v) Hard discs, floppy discs and diskettes for computers.
(vi) Test and measuring instruments.
(vii) Materials for electronics.
(viii) Computers.
(ix) Broadcasting equipment.
(x) Control instrumentation and industrial and professional electronics.
(xi) Communication equipment.

Excepting consumer electronics, most other areas are now exempt from MRTP clearance under sections 21 & 22 of MRTP Act.[1]

Small-scale Development

The development of small-scale industries is considered important and this sector can make significant contributions to the growth of electronic industry. However, on consideration of economies of scale, production at international

[1] *Ibid.*, pp. 2–3.

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cost and quality, emphasis on R&D, etc., it has been felt that this sector can play a very significant role as supplier of ancillary products.

With above in view, the items reserved for exclusive production in the small scale will be periodically reviewed.

Government had earlier announced that components need to be manufactured in large volume; it is, therefore, proposed to dereserve some of the components which are today reserved for the small scale sector.

A number of items have been decentralized and can be approved by the state Governments.

Research and Development Policy

In the Seventh Plan, greater emphasis will be given to:

(i) in-house R&D for design/modifications/adoption and adaptation of imported designs, etc., and
(ii) creation of centres of excellence in selected areas.

A national goal of 3 per cent of production value to be spent on R&D by the industry has been set in the Seventh Plan document. Industries are encouraged to set up R&D facilities of their own. Requests for import of technology will be judged on assessment of the strength of in-house R&D.

Thrust areas for achieving excellence in technology have been identified. Action has been taken in certain areas such as switching and telematics development, silicon materials, etc. by the Department of Electronics. Specific programmes are envisaged in the area of microelectronics and opto-electronics, computers, microprocessor based instrumentation, etc. Projects are also being sponsored in academic and R&D institutions and public sector organisations.

Fiscal Policy

The principles of fiscal policies for electronics had been announced in August, 1983. The broad principles are:

(i) to make cost of inputs lower through tariff rationalization.
(ii) to offer protection to the indigenous industry mainly through fiscal measures.
(iii) to bring down the cost of production to international level at factor costs.
(iv) to introduce controlled amount of competition with the products manufactured abroad through import policy and tariff policy mechanisms.

To achieve these objectives, the import policy and tariff policies have been modified. The effect of these policies will be monitored and further modification may be considered based on the feedback received.[6]

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[6] *Ibid.*, p. 4.

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Specific Sector Policies

For selected areas, certain detailed policy guidelines have been issued which are highlighted in the following:

Manufacture of Sub-assemblies

The manufacture of sub-assemblies as an end product to be sold to Original Equipment Manufacturer can be treated as an independent manufacturing activity. The approvals are given under two categories:

(i) Electronic sub-assemblies.
(ii) Mechanical/Electro-mechanical sub-assemblies for electronic equipment.

Small scale and organised sector (except MRTP and/or FERA Companies) are eligible to manufacture sub-assemblies.

Licensing policies related to the end-product for which sub-assemblies are proposed to be manufactured would be applicable. Proposals should indicate the end products for which sub-assemblies are required to be manufactured.

Digital Electronic Watches

The modules for digital electronic watches (DEW) and electronic circuit blocks for analogue electronic watches and digital electronic clocks will be supplied only by Semiconductor Complex Ltd. (SCL). Decision for setting up of a second unit in private sector unit will be considered if demand outstrips the capacity of SCL.

With the above condition, the policy for DEW's, etc., will be as follows:

(i) There will be no restriction on marketing of the products.
(ii) In addition to the present approved units, fresh capacity approvals/ licences may be issued to existing mechanical watch units, analogue electronic watch units, small scale and other units.

Manufacture from Intermediate Stage

Bipolar integrated circuits linear and digital will be allowed to be manufactured without having to set up diffusion facility. This is subject to the condition that investments in machineries and facilities (other than building) is not less than Rs. 5 crore.

Communication Sector

Till recently, this sector was reserved for production in the public sector. Through an announcement in March 1984, 100 per cent private ownership has been permitted for equipment, at the subscribers premises such as Telephones, EPABXs, Teleprinters, Fascimile equipment, data communication terminals, etc.

For other communication items, Central/State Government will hold at least

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51 per cent of the equity shares and will have the requisite powers to guide the policy and control the operations of the undertaking. Rest of the equity share may be contributed by others.

An exception to the above will be made to set up an ESS factory using the technology being developed by the Centre for the Development of Telematics (CDOT). The pattern of equity investment in this proposed unit will be:

26 per cent by the government.
25 per cent by a private sector party.
49 per cent by the general public.

Wireless Apparatus

Wireless apparatus (excluding radio receiving sets) have so far been reserved for public sector under IPR-1956 with minimum Government equity of 51 per cent enabling effective control of all operations. Broadly, the equipment covered under this category include HF/UHF/VHF transreceivers. HF-SSB sets, radio-relay equipment base stations, paging equipment, land mobile and maritime mobile radios, CB radio, accessories and allied equipment.

Computers

The revised computer policy for manufacture and import of computers and computer based system had been announced* in November 1984.

The main features of this policy are:

(i) Any Indian company is eligible to manufacture (including companies with foreign equity up to 40 per cent) of computer systems (excluding 32 and higher bit super-mini/mainframe architecture but includes microprocessors of 32 and higher bit or equivalent CPU, memory and peripheral controllers completely incorporated in LSI/CLSI chips).
(ii) Single point scrutiny of all applications by the Inter-Ministerial Standing Committee (IMSC).
(iii) No capacity restrictions (including systems below Rs. 3 lakh ex-factory value). Existing units can get higher capacities endorsed on the basis of the investments and availability of infrastructure.
(iv) Suppliers of CPU/Peripherals/Subsystems on OEM basis will be entitled to import technology on a liberal basis.
(v) Imports of designs and drawings, systems/utility software will be permitted initially.
(vi) Software imports in the form of source code is encouraged.
(vii) Information required for approval will have to be submitted in prescribed proforma available with CCI-Wing of Department of Electronics.[7]

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* For text of the Computer Policy, please *see* Appendix 3.3.
[7] *Ibid.*, pp. 4–5.

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Computer Software

A new policy on Computer Software Export, Software Development and Training was announced in December, 1986.* The main objectives of this policy are:

(i) To promote software exports to take a quantum jump and capture sizeable share in international software market.
(ii) To promote the integrated development of software in the country for domestic as well as export market.
(iii) To simplify the existing procedures to enable the software industry to grow at a faster pace.
(iv) To establish a strong base of software industry in the country.
(v) To promote the use of computer as a tool for decision making and to increase work efficiency and to promote appropriate applications which are of development catalysing nature with due regard for long-term benefit of computerisation to the country as a whole.

The main features of the policy are:

(i) Import of hardware and/or software of computer/computer based systems for undertaking software export projects at concessional customs duty of 60 per cent.
(ii) Software export can also be carried out using satellite data link.
(iii) A new scheme has been launched through EXIM Bank to provide foreign exchange to software exporters for import.
(iv) Computer Software can be imported on OGL either by actual user or by computer manufacturer or by software company for stock and sales at 60 per cent customs duty per copy.
(v) A number of fiscal incentives have been given to the software exporters to boost their export.
(vi) Only non-FERA companies with a maximum foreign equity upto 40 per cent will be allowed for software development for domestic market. Companies with foreign equity exceeding 40 per cent will be permitted only 100 per cent export project.
(vii) Foreign exchange allocation of upto 30 per cent of the net foreign exchange earnings in the previous year will be allowed to the software exporters for marketing their products abroad.
(viii) DOE along with the Department of Education with UGC will set up Indian Institute of Informatics Technology (IIIT) in each of the four regions of the country for the training of the computer professionals.
(ix) Software Development Agency has been established by the DOE for the implementation of the new software policy. A number of incentives will be given to the private sector education and training institutions in

* For text of the Policy Statement please *see* Appendix 3.5.

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the country for the development of trained manpower subject to certain obligations.

Control Instrumentation and Industrial Electronics

The policies announced for computers will be made applicable, with suitable modifications, to control instruments, instrumentation and systems, industrial and professional electronics and data communication equipment.[8]

ELECTRONICS PRODUCTION AND EXPORTS

In India, the production base for the electronics industry is wide-spread. There are over 2500 units in the public sector (both Central and State), organised private sector and small-scale sector. It is, however, noticed that the main contribution to production (accounting for about 75 per cent of the total output) comes from 250 major units of which over 100 units are in the small-scale sector. The contribution of public sector units in the overall production of electronics is about 30 per cent, that of the small-scale sector is about 45 per cent and the remaining 25 per cent is contributed by units in the organised private sector. The total direct employment in the electronics units is estimated to be around 2.5 lakh.[9]

During the last three years, the electronics industry had made impressive strides in both the equipment and the component sectors recording a large increase in production. The total production of electronics in 1988 was worth Rs. 6300 crore compared to Rs. 4720 crore in 1987 and Rs. 3460 crore in 1986. Thus, the growth rate achieved during 1988 was 33.5 per cent compared to 36.4 per cent during 1987 and 30.1 per cent during 1986 The significant feature of the growth during the last few years was the fact that there had been a substantial fall in prices of items like computers, some of the components and consumer electronic products. The sector-wise production of electronic equipment during the years 1986–88 is given in Table 3.2.[10]

Export of Electronic Goods

Along with the increase in production, exports of electronic goods were also looking up. These exports from India had increased from Rs. 312 crore in 1987 to Rs. 475 crore in 1988 thus showing a growth of 52.2 per cent. Computer software has emerged as one of the single largest export item where exports worth Rs. 100 crore has been achieved in 1988. To encourage exports a separate Electronics and Software Export Promotion Council has also been set up.[11]

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[8] *Ibid.*, p. 8.
[9] Government of India, Department of Electronics, *Annual Report*, 1988–89, p. 7.
[10] *Ibid.*, p. 58.
[11] *Ibid.*, pp. 6 & 20.

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Table 3.2
Production of Electronic Equipment and Components

(Value in Rs. crores)

Sl. No.	Sector	Calendar year production		
		1986	*1987*	*1988*
1.	Consumer Electronics	1275	1820	2400
2.	Instrumentation & Industrial Electronics	525	685	935
3.	Computers	280	375	486
4.	Communication and Broadcasting	504	710	900
5.	Aerospace and Defence	222	300	390
6.	Components	510	700	1025
7.	Export Processing Zones	144	130	164
	Total	3460	4720	6300

India's exports in electronics can come up further with the significant growth of the electronic sector especially since the growth is likely to take place at progressively reducing prices. By 1989–90, expected exports will be Rs. 1000 crore including hardware of Rs. 500 crore and software of Rs. 300 crore. The balance will be pertaining to system and turnkey projects.[12]

STANDARDISATION, TESTING AND QUALITY CONTROL PROGRAMME

Standardisation, Testing & Quality Control (STQC) Programme of the Department of Electronics, being implemented by the DG, STQC is oriented towards improving the quality and reliability of the indigenous electronic products in conformance with the national/international standards thereby resulting in an overall improvement of efficiency and productivity with increased electronic applications in various sectors of economy in the country and also leading to better consumer satisfaction. The standardisation activity helps in arriving at techno-economical capacity levels for production/purchase and also in exports build up.[13]

Directorate of STQC is implementing this mission action-oriented programme by providing testing, calibration and development assistance facilities at four ERTLs (Electronics Regional Test Laboratories), 15 ETDCs (Electronic Test and Development Centres) located in different parts of the country and through a variety of motivational, coordination, promotional, reviewing and monitoring activities such as Product Assurance Programme, National

[12] *Annual Report*, 1986–87, *op. cit.*, pp. 5 & 7.
[13] *Ibid.*, p. 33.

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Measurement Assurance Programme, NCT CF Programme (coordinated by DST for various disciplines) for accreditation of electronic test and calibration laboratories, reliability/safety, testing and standardisation. Some of the highlights of the work carried out to attain the above objectives, are given below:

Standardisation

For colour TV (CTV) Receivers/Critical Components for CTV and personal computers the directorate has formulated the achievable specifications and standards based on actual testing in respect of CTV Receivers/Critical Components and 8-bit personal computer system including the associated peripherals. These specifications have been finalised in active collaboration with the major users, manufacturers and ISI etc. CTV receivers of various types from different manufacturers are being tested by taking random samples of manufacturers of CTV receivers, etc. Similar work is also in progress in regard to personal computers and associated peripherals. Comprehensive specifications of the critical components, viz. semi-conductor devices are at an advanced stage of finalisation. This has resulted in reducing the total number of different types of devices. As a result of these activities, an investment to the order of Rs. 1000 crore is forthcoming for indigenous manufacture of CTV tubes, glass shells and some of critical components.[14]

Inter-Company Standardisation

A task force has been set up by the STQC Directorate for standardisation of electronic components at the inter-company level. Non-availability of inter-company standards results in low capacity utilisation, heavy imports, disproportionate inventories hold-up on production line and loss of funds due to lack of bulk purchases of material and components etc. Three separate working groups are presently engaged in finalising the inter-company specifications for connectors used in (a) professional; (b) consumer; and (c) other application sectors. These specifications would eventually get adopted as national specifications.

Testing, Calibration and Quality Assurance

A network of test, calibration and development facilities has been set-up in the form of four Electronics Regional Test Laboratories (ERTLs) and 15 Electronics Test and Development Centres (ETDCs) located in different parts of the country. Primary standards and calibration facility at NPL is also being supported under the programme. Facilities at these laboratories/centres are augmented depending upon local requirements and based upon formulation of packages of equipment required for each area of activity as well as building up centres of expertise.

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[14] *Ibid.*, pp. 33–34.

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Computer-Aided Test & Calibration facilities with better storage capabilities have been established in the STQC laboratories in preference to the cost intensive Automatic Test Equipment (ATE) of dedicated nature in areas where the workload does not justify procurement of ATE type of facility. Static & dynamic burn-in testing facilities for electronic components including ICs have been established at the two STQC laboratories at Delhi and Bombay under the INDO-FRG Programme for quality improvement of electronic products. A flexible three-tier National Measurement for Electronics (NMSE) has been evolved. A compendium of electronic calibration facilities in the country has been prepared listing the facilities available in seventy five organisations. A paper on NAMAPEL was presented in the international conference on electro-magnetic measurement (CPEM-86) held at National Bureau of Standards, USA. The operational details were viewed by the participants as being very relevant to the requirements of the developing countries.

A joint collaborative programme has been worked out for on-line and remote frequency calibration *vide* INSAT 1-B with reference to primary standards of Time and Frequency at NPL. The STQC laboratories are covered under this scheme.[15]

Human Resource Development and Awareness Creation

With a view to create and update expertise in different aspects of quality and reliability, high priority is being accorded to human resource development in order to create an environment to be ready to handle more challenging prob-lems. To impart specialised training in the area of STQC, a Training Institute was established at ETDC, Jaipur. A Solder School called "Centre for Electronics & Inter-Connection Packaging (CEIP)" has been set up under the INDO-FRG Programme in which a large number of persons from different electronic industries have been trained. In addition to this, action was initiated for setting up 6 Additional Solder Schools at various STQC Labs/Centres.[16] Several seminars on different aspects of quality and reliability are also being conducted. In addition STQC engineers/staff members are also being trained at NPL, New Delhi and ERTL East Calcutta.

Product Oriented Quality Improvement Scheme

In response to specific requests from some industries a programme for analysis of the manufacturing problems and quality improvement of audio-magnetic tapes for high-speed duplication was initiated. An analysis of the test data on randomly selected products, coupled with visits/discussions with the manu-facturer/user resulted in identifying various steps to be taken for improving the quality of the product. The programme is being further extended in view of the initial encouraging results obtained. STQC provided necessary help to ISI in

[15] *Ibid.*, p. 34.
[16] *Annual Report*, 1989–90, *op. cit.*, p. 50.

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preparing specifications on microwave ovens, with particular emphasis on safety aspects. Similar exercise for updating specifications is being initiated in respect of radio-receivers and two-in-ones, etc.[17]

ELECTRONICS PLAN, 1985–90

Electronics has a tremendous potential for improving the standards of living and quality of life of the people. The relevance and rationale of electronics to India lies, not so much in its being the most modern technology but in the fact that because of its versatility and easy adaptability, it offers some of the most appropriate technological choices suited to our conditions for solving many of our socio-economic problems and the objectives of growth and employment. The electronics industry provides maximum employment per unit of investment. The potential of electronics in educating our masses, in improving agricultural productivity and in health and medicine is tremendous but largely untapped so far.[18]

Promotional Policies for Accelerating Growth of Electronics

The electronics industry in India is, however, small in size by international standards though not in terms of inherent strength and the potential for future growth. There is need for reduction of prices in most of the products. We have also to keep ourselves abreast of the technological development taking place in this industry in other parts of the world. The Government, therefore, had formulated new promotional policies to accelerate the growth of electronics in the country. The basic thrust of these policies during the Seventh Five-Year Plan is in the following directions:

(i) General liberalisation of the licensing policy with emphasis on creating an appropriate environment for rapid growth of electronics.
(ii) As a general rule, the pattern of growth will be influenced by fiscal motivation, rather than by physical controls.
(iii) Volume production at the most economic level with contemporary technology would be the guiding principle of the policy for development of this industry.
(iv) Indians abroad, entrepreneurs as also the experts, who have contributed to the electronics industry overseas will be expected to play an important role in the development of the domestic industry.
(v) Vigorous efforts will be made in the direction of standardisation, through which alone economically viable production of components can be achieved.

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[17] *Annual Report*, 1986–87, *op. cit.*, p. 35.
[18] Government of India, Planning Commission, *The Seventh Five-Year Plan* (1985–90), Volume II, p. 194.

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(vi) Effective steps will be taken to ensure quality and reliability of our electronic components and products.[19]

A total outlay of Rs. 471 crore has been approved for the Department of Electronics during the Seventh Plan in comparison with the Sixth Plan outlay of Rs. 140.28 crore. However, the anticipated expenditure during the Sixth Plan was Rs. 173.82 crore.[20]

Objectives of the Seventh Plan for Electronics

In view of the experience gained during earlier plans, the following objectives for the Seventh Plan for electronics have been laid down:

(i) *Mass Communication*: Measurable in terms of percentage of population that can be reached, through mass media such as broadcast, telephone, telegraph, teleprinter, teletext, etc.

(ii) *Information Base*: The aim is to create an information base all over the country, in the same nature as the National Informatics Centre (NIC) and to interconnect the system nationally. The effectiveness can be measured through the number of centres, their power to store and handle information and effectiveness of information interchange.

(iii) *Electronics in Education*: It is the aim of the plan to introduce audio-visual and computer media in education. The sectors to be primarily attempted to cover are primary and secondary education, health and family welfare education, agricultural education, etc. Both broadcast media, computers and video playing systems are to be used. The effectiveness is to be measured through percentage of population covered, number of educational programmes produced, etc.

(iv) *Increase in Productivity*: This would be achieved through introduction of process control instrumentation, automation of production processes, computerised design activity, etc. Productivity per person directly engaged in production would be the measure of this activity.

(v) *Research & Development*: This is most important for achieving self-reliance. The most important areas identified are:
  (i) Micro-electronics technology;
  (ii) Switching technology;
  (iii) Fibre optic technology;
  (iv) Production technology; and
  (v) Technology for the manufacture of capital equipment.

In each area specific goals will be set and centres of excellence will be identified and set up. The success will be measured by comparing the goals with the achievements.

In other areas of R&D, specific policy measures will be initiated to encourage investment and utilisation of available technologies and resources.

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[19] *Ibid.*, p. 194.
[20] *Ibid.*, p. 196.

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(vi) *Manufacture of Capital Equipment*: A major reason for high cost of Indian electronic products is the high content of imported capital equipment. It is, therefore, considered to be critical to develop our industry for manufacture of capital equipment, both for production as well as for testing. As a first step an agency will be created by the Government to start adaptation and improvement of machinery. This agency can develop into a manufacturing organisation later.

(vii) *Need Based Planning*: Very often production is technology driven, i.e. it depends upon the availability of a particular technology without looking into the relevance and appropriateness of the technology and the product in the context of our national goals and aspirations. The adoption of technology, the product and the process should, therefore, be based upon actual felt needs.

(viii) *Academic and R&D Institutions*: Integration of such institutions with the plan has been suggested. Academic studies, training of manpower and R&D projects should be so oriented as to be effective instruments for achieving objectives.

(ix) *Cost Reduction*: The plan would aim at reducing the cost of production of electronic goods to the international level. This would be achieved through reduction in input cost, higher productivity and elimination of delays.

(x) *Exports*: All export efforts will be encouraged. This is necessary as exports are essential for:

(i) Catering partly for the foreign exchange required for the planned growth;

(ii) Testing the strength of our products in the international market place; and

(iii) Capacity utilisation of our industry.

Annual Plan for 1989–90

The Department of Electronics has been allocated Rs. 100 crore during the year 1989–90. Most of the resources allocated during the year are for various on-going projects/programmes. A very high priority has been given for mission-oriented technology projects like Centre for Development for Advanced Computing (C-DAC), Centre for Development of Telematics (C-DOT) etc. For the development of the infrastructure, such as testing facilities, manpower training, centres for electronic design and technology, etc. an allocation of Rs. 15 crore has been made. Another area which has received priority is the technology development, both through departmentally run projects and through sponsored research activity to be carried out at existing institutions/ R&D laboratories. Application oriented research, mainly improving the productivity of other sectors of economy has also been provided adequate budget support.[21]

[21] *Annual Report*, 1988–89, *op. cit.*, p. 7

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MEASURES TAKEN BY THE GOVERNMENT TO EXPAND PRODUCTION OF ELECTRONIC GOODS

On March 21, 1984, the then Deputy Minister in the Department of Electronics and in the Ministry of Food and Civil Supplies, Dr. M. S. Sanjeevi Rao said in Lok Sabha that the Department of Electronics had been taking a number of measures as part of a total strategy to expand our electronics productions as rapidly as possible through an industrial structure which was maximally self-reliant and technologically contemporary. These measures ranged from: industrial licensing policies which promoted the setting up of production capacities governed by techno-economic considerations and volume production at the most economic level; planning with the major government/public sector users of electronics; their future up-coming requirements and promoting and co-ordinating the setting up of domestic production capacity to meet these requirements, production and R&D investments by Government in key high technology areas *e.g.* LSI/VLSI, microwave tubes, silicon and main-frame medium size computers, a major Development and Engineering programme on a state-of-art electronic switching system (ESS) and for the telecommunication network of the country; R&D promotion and technology development on a range of systems, equipment, components and materials; Centres of Excellence in frontier technologies/applications of electronics, e.g. fibre-optics, telematics, electronics in agriculture and education, major man-power training programme in computers, control and instrumentation, communications and semiconductors. By their very nature the impact of these measures would be felt over a number of years rather than in any particular/single year such as 1984. This was reflected in the fact that, over the period 1976–79 our electronic industry expanded at an average rate of around 20 per cent and that this average rate increased to around 25 per cent over 1980–83.[22] The growth rate during the years 1986, 1987 and 1988 was 30.1 per cent, 36.4 per cent and 33.5 per cent respectively.[23]

Measures taken by Government to expand production of electronics in certain sectors are given below:

Telecommunications

The Government has been making concious efforts to broadbase the telecommunications industry for the past several years. These efforts have been given a major boost as a consequence of the integrated liberalisation measures announced in 1984. Hitherto, the manufacture of the complete gamut of telecommunications equipment, was restricted to public sector and with the announcement of the measures in 1984, the manufacture of telecommunications terminal equipment which is generally known as subscriber and equipment has

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[22] *L. S. Deb., USQ*, No. 4134, March 21, 1984.
[23] *Annual Report*, 1988–89, *op. cit.*, p. 10.

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been thrown open to private sector. Also, joint sector units with upto 49 per cent private participation were encouraged to take up manufacture of the remaining items, mainly transmission equipment and switching equipment. 35 approval letters have been issued for manufacture of telephone instruments. The acquisition of technology for their manufacture has been done on a centralised basis to render the manufacture of the critical components required for the telephone instruments economically viable. 14 letters of intent have been issued for fascimile equipment, 12 for cordless telephones, 6 for pay-phones and 4 for teleprinters. While some of the parties have already converted into industrial licence, the others are in various stages of implementing the letters of intent.

Manufacture of electronic PABX systems also has been taken up in a big way. The Centre for Development of Telematics (CDOT) which is an R&D society jointly funded by the Department of Electronics and the Department of Telecommunications has successfully completed the development of 128 port electronic PABX and RAX as a byproduct in its efforts to develop the main electronic switching systems. The technology developed by CDOT for PABX is being transferred to nearly 50 parties. This would make PABX systems to be available at very economical prices. In addition to the 50 parties implementing the project with CDOT technology, 11 parties are implementing the project with foreign collaboration which has been acquired on a centrally co-ordinated basis prior to CDOT technology becoming available. Most of them are in very advanced stages of implementation of the project. 11 units have been licensed for the manufacturing of Rural Automatic Exchanges. Even though at one time foreign collaboration was thought of, with the availability of CDOT technology, it has been decided to close the TOT tender and implement the project with CDOT technology. Manufacture of electronic switching systems is already in progress at ITI Mankapur in collaboration with M/s. CIT—Alcatel of France.

Digital multiplex equipment which is required both for long distance digital telecommunication links as well as for local junction applications (Interexchange circuits) known as primary pulse code modulation multiplex equipment (PCM) has been successfully developed by the Telecommunications Research Centre (TRC) of the DOT. 12 parties have been licenced to manufacture this equipment, on the basis of TRC know-how. Taking into account the satisfactory performance of the TRC developed higher order digital multiplex equipment, it was also decided not to go in for any foreign collaboration. For the manufacture of 7 GHz microwave radio relay equipment manufacture, 120 channel digital UHF radio relay equipment as satisfactory progress has been achieved in the products being developed at ITI and BEL in collaboration with the TRC, indigenously developed technology is being encouraged.

Manufacture of digital microwave systems and optical fibre communication systems as well as the optical fibre and the optical fibre cables is going to be taken up at M/s. MPSEDC and ITI/Hindustan Cables Ltd. Satellite Communication equipment is already under manufacture at M/s. ITI, Bangalore. In addition, the manufacture of low cost satellite communication terminals is in

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progress at GCEL, Baroda. For the satellite based data communication network of NIC known as NICNET, the small aperture microearth-stations are to be manufactured by M/s. ITI, Bangalore.

With the successful implementation of the above cited projects, it is expected that a major portion of the country's telecommunications equipment requirements would be met through indigenous manufacture.

Broadcasting Equipment

Government has already implemented the expansion of the TV Network so as to provide TV coverage over an area encompassing approximately 70 per cent of country's population through its special plan for the expansion of TV Network. Under this scheme TV coverage has been realised by setting up high power TV transmitters and low power TV transmitters and also these transmitters have been linked to the national network through using satellite (INSAT-1-B) and TV Receive Only Terminals (TVROs). During the Seventh Five-Year Plan, it has been planned to establish facilities for local programmes, programmes in local languages and extension of service to rural areas which shall be achieved by providing programme production facilities at all TV Centres and by establishing links between the State capitals and the relay transmitters so that well produced programmes in local languages can also reach the viewers in the rural areas served by the relay transmitters.

All India Radio has also planned to achieve about 100 per cent coverage of population including the coverage for remote, border and backward areas, development of a dedicated national channel for broadcast of programmes of national relevance, consolidation of regional shortwave support service in the different States of the country, introduction of new commercial local radio centres and utilisation of FM service for extension of local radio experiment in the country, upgradation of power of certain mediumwave transmitters, strengthening and consolidation of external services and replacement and modernisation of obsolete equipment. With the completion of the scheme in the Seventh Plan, the network will cover 97.5 per cent of India's population.

The complete hardware required to achieve the above has been worked-out and its total requirement up to the year 1990, both for Doordarshan and All India Radio has been estimated at production level of Rs. 750 crores.

Department of Electronics working closely with the Ministry of Information and Broadcasting has identified production agencies for the manufacture of broadcast equipment to meet the requirements of the Seventh Five-Year Plan. These equipments are now being manufactured by M/s. BEL, ECIL, GCEL, KELTRON, MELTRON and WEBEL. The details of scope of manufacture of each company are as under:

(a) M/s. BEL:
- — High Power (MW & SW) AM Transmitters for AIR
- — TV Transmitters for Doordarshan
- — FM Transmitters for AIR
- — Sophisticated and precision Video equipment

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(b) M/s. ECIL:
— Satellite related items such as TVROs & DRS
— Antennae for FM Transmitters
(c) M/s. GCEL:
— Video equipments
— FM transmitters for AIR
— LPTs & VLTs for TV
(d) M/s. MELTRON:
— Audio equipments for AIR
(e) M/s. WEBEL & M/s. KELTRON
— They have also taken-up manufacture of certain low value added audio and video equipments.

Some of the equipments like TVROs, Direct Reception Sets (DRS), very low power and low power TV Transmitters and various audio equipments are being manufactured on the basis of technologies indigenously developed by agencies like Space Applications Centre (SAC) or inhouse developmental efforts of the concerned units.

Computers

In the area of mini computers/microprocessor-based systems, more than 500 units from the organised and small-scale sectors have been approved in the past, out of which 100 units have commenced production. For the super mini area and mainframe range of computers where the indigenous knowhow does not exist, import of technology has been allowed from M/s. Norsk Data of Norway and M/s. Control Data Corporation, USA. The total value of indigenous production of computers for the calendar year 1988 had been Rs. 486 crore as compared to Rs. 325 crore in 1987 and Rs. 280 crore in 1986. Presently, the product range in the area of computer comprises mini, micro, super mini and mainframe systems, low and 2D and 3D graphic work stations for CAD and CAM applications. The majority of the production, in the areas of mini computer/microprocessor based systems, however, was accounted for by PC, PC/XTs, PC/ATs and mini systems based on 80386 micro processors. The production of personal computers reached a number of 60,000 in 1988 as compared to 46,000 in 1987. The Department of Electronics is making efforts to bring down the cost of personal computers through standardisation and bulk purchase of materials.[24]

Manpower Development

With the increase in diversification of electronics gadgets and equipments being used by non-technical and highly sophisticated users necessity for well trained electronics manpower for production, servicing and maintenance, etc., is being felt as basic need in development of electronics in the country. Just in

[24] *Ibid.*, pp. 13 & 58.

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TV servicing the manpower requirement will rise from one lakh to three lakhs by the end of terminal year of the Seventh Five-Year Plan. Same is the case for computer communication equipments, different consumer products and other allied equipments.

With the above object in view, a pilot training programme for the training of service technicians at craftmen level was introduced in 86 ITIs/Polytechnics during 1988–89. This course would build necessary skills in the students for trouble shooting and servicing these equipments. The high priority being given to electronics industry has necessitated the massive expansion of the related services. Trained manpower and continuous updating of this manpower stock are of crucial importance for the growth of electronics. Therefore, priority has been given to reorientation/retraining of teachers teaching electronics subject at various ITIs, Polytechnics, etc., on a continuous basis. The emphasis is to expose the teachers to the modern techniques of class room management and to provide hands on experience on dynamic demonstrators, audio-visual aids and computer aided instructions.[25]

FISCAL MEASURES FOR ELECTRONICS INDUSTRY

In order to attract investments, fiscal policies relating to the electronics industry have been rationalised. The present policy aims at reducing input cost to the minimum and also infuse a controlled amount of competition into the industry, so that the benefits are passed on to the ultimate consumer and the price of electronic equipment to the end-user is reduced considerably.

The policy has been designed to provide raw materials and manufacturing inputs at the lowest duty. The component industry which is vital to the growth of electronics will benefit immensely from these measures. These components are used by the equipment manufacturers and the component manufacturers will thus be provided with inputs at considerably lower costs. At the same time components themselves will be available at the higher duty. Import of computer systems and other finished equipment are being permitted selectively. The duty elements for such items have also been rationalised.

In electronic sector, the controls where unavoidable will be through fiscal measures rather than physical. The protection to indigenous industry will also be mainly through these measures.

Some of the salient features are given below:

TV Receivers

On colour television sets not exceeding 36-cm screen size and without remote control the excise duty has been fixed at Rs. 1500 and the excise duty on sets of similar size but with remote control the duty will be Rs. 1750 per set. Sets of bigger sizes without remote control will attract an excise duty of Rs. 2250 per

[25] *Annual Report*, 1986–87, *op. cit.*, p. 30.

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set and the set with remote control will have a duty of Rs. 2500. Sets having the facility of picture-in-picture will have a duty of Rs. 4000 per set.[26]

In regard to black and white TV sets above 15 cm but not exceeding 36 cm the excise duty is nil. While in case of larger screens duty would be Rs. 1000.

An excise duty or countervailing duty of Rs. 150 on black and white tubes meant for TV sets of size above 36 cm and of Rs. 600 on all colour television tubes have been imposed. Under MODVAT, this input duty would be fully rebated to duty-paying manufacturers with no additional duty burden on the consumer.

Computers

Custom duty of 142 per cent is levied on computer systems imported under OGL, whereas 76 per cent duty is charged on all systems cleared by Department of Electronics including those costing less than Rs. 10.00 lakh. 76 per cent import duty is charged on all imported computer peripherals.

But during 1988–89 a uniform rate of customs duty of 80 per cent was prescribed for computers, computer systems and peripherals.

Excise duty of 10 per cent has now been levied on computers including CPU and peripherals manufactured.

In order to establish indigenous base for peripherals, 45 per cent import duty is levied on parts (other than electronic components) for the manufacture of line printers, serial printers, terminals, magnetic drives, digitisers, etc., whereas 75 per cent duty is imposed on electronic components required for peripherals.

Those who import sub-assemblies for computers need to pay higher duty of 150 per cent. Computer spares are allowed to be imported under 75 per cent duty.

Other Areas

— In the field of general electronics concessional duty structure of 30 per cent, 45 per cent and 75 per cent has been provided for imports of raw materials, piece parts and components respectively.

— 100 per cent import duty on magnetic tape for sound recording and 150 per cent on video and computer tapes is charged.

— Capital goods required for the manufacture of LSI/VLSI can be imported at 15 per cent under project import.

— Concessional rate of custom duty, i.e. 30 per cent on moulds, tools and dies required by electronic industry subject to certification by the Department of Electronics.

— The duty has been reduced from 140 per cent to 55 per cent on specified equipments required for research and development.

— Customs duty was lowered on a number of raw materials required for electronic components industry.

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[26] Union Budget, 1989–90.

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COMPUTER POLICY, 1984

During the last two decades, computers are being increasingly used by developed countries to improve productivity in almost all spheres. In India the use of computers is still in an infant stage. We have a long long way to go in the purposeful use of computers.

From 1972–79, the Government policy in the field of computer usage seemed to have been one of rigid control of imports, with consequent delays in clearance for imports and insistence on the use of high value, low power computers, indigenously manufactured in the public sector. However, in 1979 about 80 units were licensed for mini and micro computer based systems. Mainly due to high cost of marketing and heavy customs duty of 150 per cent on subsystems and certain licensing restrictions, the indigenous costs were high.

These restrictions on use of imported computers were imposed as a corollary to the overall policy of technological self-reliance and for giving stimulus to the indigenous production of computers.

In November 1984, the Government announced a major change in the computer policy.* The new policy made certain revisions to the existing policy and procedures for manufacture, import and export of computers and computer-based systems. With the new pragmatic policy, it is expected that use of computers would go up in India during the next 10 to 15 years. The Government wants to promote appropriate application of computers because of their catalysing effect on development. Introduction of as many as 100,000 computers annually is envisaged during the Seventh Plan.

Objectives of the New Policy

The basic objectives of the new computer policy are: (i) Enabling manufacture in the country of computers based on the latest technology, at prices comparable with international levels and progressively increased indigenisation consistent with economic viability; (ii) simplifying existing procedures to enable users to obtain computers of their requirements either from indigenous sources or from overseas sources mainly regulated through fiscal measures; and (iii) promoting appropriate applications of computers which are of development-catalysing nature, with due regard for long-term benefit of computerisation to the country as a whole.

The salient features of the revised policy and procedures pertaining to computers and their associated subsystems like peripherals and software and computer-based systems in which the computer is a major subsystem are given below:

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* For text of the Policy please *see* Appendix 3.3.

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Streamlining of Procedure and Permitting Manufacture of All Micro/Mini Computers

All regulatory measures concerning manufacture like scrutiny of applications for Letters of Intent, Industrial Licences, Foreign Collaboration, Phased Manufacturing Programmes (PMP) and Rawmaterial imports, will be exercised by the existing Inter-Ministerial Standing Committee (IMSC) under the Department of Electronics (DOE) which has been designated for this extended purpose. The Computer, Computer-Communication and Instrumentation (CCI) Wing of the DOE will continue to be the Secretariat for this Committee.

Manufacture of micro/mini computers including personal computers, micro computers and VLSI-based mini/computers including those based on 32-bit chips or equivalent (excluding 32 and higher bit super mini/mainframe architecture) will be permitted to any Indian company, i.e. wholly owned Indian companies and companies having foreign equity not exceeding forty per cent, in the private or public sector. The manufacture of CPU of mainframes and super mini computers will be reserved for a period of two years for manufacture by the public sector.

The existing capacity restrictions on the organised sector relating to total production value of Rs. 2 crore per year and of five systems per year below Rs. 3 lakh will be deleted. Manufacture of micro and mini/computer systems will be permitted without any restriction on capacity except a minimum requirement of a viable capacity and a phased manufacturing programme (PMP), which will result in manufacture with as high indigenisation as is economically viable.

Introduction of New Classification of Computer and Computer-based Systems

A new classification "Computer and Computer-based-Systems" will be introduced for the items covered under this policy. This new classification will be entitled for investment allowance and other incentives available for new industries. Software development and manufacture is classified as "industry". The industry will be exempted from the purview of the locational policy, etc., in view of its specialised high technology nature.

Accent on Standardisation and Updating Technology

The new policy seeks to promote standardisation of computer inputs so that their demand could be on a large enough scale to be viable. However, it will be dynamic standardisation which will respond to constantly changing technology. The large-scale manufacture by a few companies of CPUs, peripherals and other subsystems for supply to other manufacturers of whole computer systems will be promoted with liberal import of know-how and lower excise duty.

The idea is to promote viable level of manufacture; even small units will be helped to graduate into larger ones. Such growth is necessary to help them to invest on R&D heavily, in this fast changing technology. The DOE will ensure

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that they develop into units of viable capacity, undertake phased manufacture and progressively update their technologies.

Streamlining of Import of Computers

Import of computers, computer-based systems and computer subsystems like peripherals for integrating with an imported CPU will be permitted only to actual end users. They will be permitted to import standardised EDP system as complete systems costing less than Rs. 10 lakh on the basis of liberal procedure by paying a sufficiently high protective duty. This has become effective from April 1, 1985. The DOE will recommend progressively lower levels of duty on such imports from time to time in order to make local manufacture progressively more competitive with respect to equivalent imported systems.

If the use of the computer is desirable and is not available indigenously, the user will be permitted to import at a low level of duty.

Import of application software not available commercially in the country would be permitted to actual users with low duty levels on a case to case clearance by DOE. The actual user may avail of OGL facility with a sufficiently high protective import duty for any software after informing, in writing, the Department of Electronics. In addition, where possible, DOE would arrange for centralised import of software for distribution to manufacturers and users on a no-profit no-loss basis.

Maintenance of imported computers and predominantly computer-based systems imported will be done either inhouse by the actual user or by the CMC Limited or by any other agency designated by DOE. The DOE designated agency or CMC or the user responsible for the maintenance of imported computer systems will be permitted to import spares, tools, test equipment and software support for warranty maintenance on the basis of CCP licence if so required.

All actual users who have imported computers or purchased indigenous ones who are required to use Hindi under the Official Languages Act, will be encouraged to augment their computing facilities for input-output processing of data in *devanagari* in addition to English within two years of installation of the system.

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APPENDIX 3.1

Statement Regarding Measures to Further Accelerate the Rapid Development of Electronics made in Lok Sabha by Dr. M. S. Sanjeevi Rao, the then Deputy Minister in the Department of Electronics, on August 18, 1983.

I wish to place before the House information on a package of measures intended to facilitate the growth of the electronics industry in our country.

The emphasis of the package is on promotion rather than regulation. We propose to encourage enterprise, to reduce input costs and to quickly attain economics of scale.

The package of promotional measures will consist of a set of rationalised and liberalised policies with regard to licensing and creation of capacities; reduction in input cost to the Industry through a rationalised duty structure, investments by Government units in critical and strategic areas such as Silicon, Microwave Tubes, Large Scale and Very Large Scale Integrated (LSI/VLSI) Circuits, R&D for Electronic Switching Systems (ESS), etc. It is also planned to use public sector units under the Department of Electronics and other to serve the Industry in a major way.

I am presenting before you a brief outline of some of the elements of this package. It may be noted that such a package has to react to the dynamism of the social and industrial scene in the country as well as that obtaining internationally. Therefore, these schemes may undergo changes in the course of their implementation.

Electronic Switching Systems—Development and Engineering Programme

The country is embarking on a major programme for manufacture of electronic exchanges or switching systems. We cannot remain with this technology for ever. Therefore, a proposal has been evolved to develop and productionise an advanced design of ESS, which is expected to be the base technology for future production. This project aims at development and prototype production of an Electronic Switching System of advanced design within a period of 3 years from the start.

LSI/VLSI Programme

The Semiconductor Complex Limited, an undertaking of the Department of Electronics, is launching this year, its production of LSI/VLSI Semiconductors 'chips' using contemporary technology. Further investments would be needed to increase the production and keep technology levels at the state-of-the-art. Various programmes, including setting up a centre of excellence to provide a major thrust in R&D on process technologies for such semiconductors, Computer-Aided Design (CAD) centres for LSI/VLSI design, microprocessor application development centres, etc., have been proposed to ensure that we are self-reliant in this critical area.

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Materials

We have been paying special attention to the area of materials, particularly silicon. Government have decided to set up a National Silicon Facility to undertake stock-piling production and R&D on all forms of silicon. Various technology development projects in the areas of gallium arsenide and related compounds copper-beryllium, silicon, etc., have been funded.

Computers

Application of computation techniques are varied. The equipment, although shrinking in physical dimensions, is becoming more and more complex in terms of both hardware and software. While the mini-micro range are being produced in the country, we are giving special attention to microprocessor systems, specially adapted for educational use to bring in awareness among our students. The midi-maxi range of computers which can be economically produced only at one or two facilities, also is being given due attention and production of midi computers and peripherals is planned in the country. The Government is also setting up 'INDO-NET'—a network of computer systems—the first of its kind in India, to enable easy and meaningful use of computers by various organisations.

Social Electronics

Considerable attention would be paid to developing applications in agriculture, medicine and education, which are of direct relevance and particular importance to our country. The market for such applications is immense and this should lead to massive growth of the electronics industry.

The House is aware already of the Special Plan for expansion of TV coverage Satellite technology, V.C.Rs, microprocessor-based computeraided instruction systems and other electronic equipment offer use a unique opportunity to change the literacy and educational profile of the country.

Industrial Licensing Policies

In addition to the various projects to enhance technological levels, some of which I have mentioned, the Department has also been looking at various policy measures to provide rapid growth of the industry. A policy decision has been taken that capacities in electronics should be governed by techno-economic considerations. Volume production at the most economic level, with contemporary, technology should be allowed in all sectors, except where specific reservations are made on special considerations. This principle has been applied in the industrial policy for Colour TV sets where it is stated that there shall be no upper limit on capacities; thus permitting and encouraging large scale production, so as to secure benefits of economics of scale and also being able to provide a high quality product of an economic price, together with servicing and support facilities. In the Colour TV policy we have also

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discarded restrictions which are based on sectoral considerations; thus the large scale, small scale, private sector, public sector, joint sector can all co-exist. This will also give an encouragement for rapid production of electronic items.

The consumer interest is being protected by ensuring that the TV sets produced are meeting a minimum specification and this will be tested by agencies of the Department of Electronics. Thus the consumer should be assured of a good quality set at the right price. Such policies will be introduced for other items—consumer and professional—so that large scale production with maximum participation by all sectors of industry, as appropriate, can grow. Easy availability of imported components, materials etc. is also of prime importance, and the Department is taking steps to ensure that these are made available from local sources where applicable.

Fiscal Measures

In order that these plans can bear fruit and can generate adequate response from investors, Government have decided to rationalise fiscal policies relating to the electronic industry. This policy aims at reducing the input cost to the maximum and also to infuse a controlled amount of competition to the industry. So that the benefits are passed on to the ultimate consumer and the price of electronic equipment to the end-user is reduced considerably.

The policy has been designed to provide raw material and manufacturing equipment at the lowest cost. The component industry, which is vital to the growth of electronics, will benefit immensely from these measures. These components are used by the equipment manufacturers who thus will be provided with inputs at considerably lower costs. At the same time, assemblies and sub-assemblies will be available at a nominally higher cost. Imports of computer systems and other finished equipments are being permitted selectively. The duty elements for such items have also been rationalised to achieve a two-fold objective of lower input costs to the end-user and to infuse healthy competition for the manufacturers. Some benefits have been given already in previous budgets and duties made in the interest of higher resource mobilisation in recent times. Thereby, the effective rates have increased from those originally intended to be applicable. Taking these into account and to give a major thrust, the Government has worked out a new package of customs duties and excise duties and depreciation rates, which means a significant reduction in the duty rates in keeping with the rationalised structure mentioned earlier.

Details of the revised duty rates of customs and excise are being notified by the Ministry of Finance.

The above incentives and programmes should lead to a rapid and healthy growth of the electronics industry in our country in a self-reliant viable manner, so that it can add to our GNP, employment technology capability and play a meaningful and appropriate role in the development of the country.

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APPENDIX 3.2

Statement regarding Manufacture of Telecommunication Equipment Relaxation from 100 per cent Public Sector Manufacture made in Parliament by Dr. M. S. Sanjeevi Rao, the then Deputy Minister for Electronics on March 23, 1984

Communication in our country need considerable and significant improvement very rapidly. Communication is the backbone of industrial development and is also necessary for reaching the rural masses. Apart from telephones, other significant forms of communication like telex, data communication, electronic mail, fascimile and of various other types have to be developed very rapidly in our country to meet the aspirations of our people.

One of the major problems facing us in this area is the shortage of equipment in our country and considerable imports have, therefore, been resorted to. It is essential that such requirements of communication equipment are met from indigenous production.

2. Under the IPR 1956, Schedule 'A', which lists the industries, the future development of which will be the exclusive responsibility of the State, the following entry exists:

> "Telephones and telephone cables, telegraph and wireless apparatus (excluding radio receiving sets)".

In view of this entry in Schedule 'A', these items, i.e. telephone and associated equipment, can be manufactured only in the Public Sector. However, the Industrial Policy Resolution permits expansion of existing privately owned units or the possibility of the State securing the cooperation of private enterprise in the establishment of new units, when the national interests so require, but it has to be ensured that the requisite power to guide the policy and control the operations of the undertakings remains with the State.

3. In the past, private sector participation has been permitted as an exception, and the entry in the IPR has been interpreted to restrict the manufacture of all communication equipment in the public sector, either Central or State. However, with the rapid advance in technology and more and more telecommunication equipment getting standardised with well defined terminal interfaces, it has been considered necessary to secure the cooperation of private enterprise on a selective basis to manufacture some of these equipment and also to permit the manufacture of some of the items in the private sector. This would obviate the situation where we, at a later date, may either be unable to produce the basic equipment which is necessary or import such equipment or not meet the ligitimate demand of the communication sector.

As the efficiency and stability of the system depends upon the specifications, of the equipment, their quality and characteristics, the specifications would have to be laid down very carefully not only to meet the requirements of the internal communication system but also of the international communication system. To achieve this, very rigid specifications, testing procedures and type

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approvals would be necessary before equipment manufactured by private organisations can be accepted in the network. Steps would be taken to guard against repetitive imports of technology based on import of kits and sub-assemblies, particularly in the wake of opening the participation to the private sector.

Centralised purchase of technology would be adopted in many more areas particularly in the field of switching and transmission equipment and it would be incumbent upon the industrial undertakings to follow such policies as may be decided by Government from time to time in this regard.

4. The various activities broadly outlined above will be meshed into a national communication plan with clear-cut objectives, particularly for this decade at least. Apart from reflecting the quantitative requirements, the technological developments would also be kept fully in view which are to form the basis of the development of our communication network both in Civil, Defence, Railways and others so that commonality also occurs between the equipment to be used.

On a very careful consideration of all relevant issues, the Government have decided that:

(i) The co-operation of private enterprise may be secured in the manufacture of switching and transmission equipment for communication sector with at least 51 per cent share being held by the Central/State Governments and maximum of 49 per cent being held by the private parties. This is already permissible under the Industrial Policy Resolution, 1956.

(ii) The private sector may be permitted to take up the manufacture of telecommunication equipment for installation at the subscribers' premises such as telephone instruments, PABXs, teleprinters, data communication equipment, etc.

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APPENDIX 3.3

Text of the Computer Policy Announced by the Union Government on November 19, 1984

The Government of India have had under consideration the question of reviewing the existing policy for manufacture, import and export of computers and computer-based systems. As a first step in that direction, the following revisions are made to the existing policy and procedures for manufacture, import and export of computers and computer-based systems.

The revision is broadly aimed at accomplishing the following basic objectives:

(i) Enable manufacture in the country of computers based on the latest technology, at prices comparable with international levels and progressively increase indigenisation consistent with economic viability.

(ii) Simplify existing procedures to enable users to obtain computers of their requirements either from indigenous sources or from overseas sources mainly regulated through fiscal resources.

(iii) Promote appropriate applications of computers which are of development-catalysing nature, with due regard for long-term benefit of computerisation to the country as a whole.

The revised policy and procedures given below pertain to computers and their associated subsystems like peripherals and software and computer-based systems in which the computer is a major subsystem.

A. Manufacture

1. All regulatory measures concerning manufacture like scrutiny of applications for Letters of Intent, Industrial Licences, Foreign Collaboration, Phased Manufacturing Programmes (PMP) and CG and Raw-material imports, will be exercised by the existing Inter-Ministerial Standing Committee (IMSC) under the Department of Electronics (DOE) which has been designated for this extended purpose. The Computer Communication and Instrumentation (CCI) Wing of the Department of Electronics will continue to be the Secretariat for this Committee. All applications should also be made directly to the CCI-Wing of DOE.

2. Manufacture of micro/mini computers including personal computers, micro computers and VLSI-based mini computers including those based on 32-bit chips or equivalent (excluding 32 and higher bit super mini/mainframe architecture) will be permitted to any Indian company, i.e., wholly owned Indian companies and companies having foreign equity not exceeding 40 per cent, in the private or public sector.

3. The manufacture of CPU of mainframes and super mini computers will be reserved for a period of two years for manufacture by the public sector. The precise definition of Mainframe range of computers and super mini computers will be laid down from time to time by DOE.

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4. A new classification "Computer and Computer-based Systems" will be introduced for the items covered under this policy. This new classification will be entitled for investment allowance and other incentives available for new industries. Software development and manufacture is classified as "industry". The industry will be exempted from the purview of the location policy, etc., in view of its specialised high technology nature.

5. The existing capacity restrictions on the organised sector relating to total production value of Rs. 2 crore per year and of five systems per year below Rs. 3 lakh will be deleted. Manufacture of micro and mini-computer systems will be permitted without any restriction on capacity except a minimum requirement of a viable capacity and a phased manufacturing programme (PMP), which will result in manufacture with as high indigenisation as is economically viable. The PMP for progressive realisation of economically viable indigenisation as well as progressive updating of technology would be ensured by the Department of Electronics through the IMSC.

6. For companies supplying CPUs Peripherals and other subsystems on original equipment manufacture (OEM) basis liberal import of know-how shall be permitted and the excise duty will be kept at relatively low level with appropriate set-off.

7. A price purchase preference to Public Sector enterprises for Government and public sector purchase of computers would be available as per prevailing Government policies applicable to this sector.

8. For Research and Development units recognised by DOE, import of designs and drawings will be allowed on OGL.

9. Adequately liberal import of designs and drawings, systems software and utility software will be initially permitted for manufacture and later regulated by PMP and raw material clearance. All applications for such imports should be sent to the CCI-Wing of the Department of Electronics and will be examined by the IMSC.

10. The Department of Electronics through IMSC will take appropriate measures for the promotion of standardisation around certain LSI/VLSI chips and peripherals with due regard to indigenously made products.

11. Import of software, where allowed, shall be preferably in the form of source code. Special encouragement will be given to central purchase of source code of software and distribution within the country.

12. To be able to manufacture the final product at internationally competitive prices, it is necessary that components should be made available to manufacturers at as near international prices as possible. Suitable revision of the duty structure on components will be recommended by the Department of Electronics from time to time based on the following principles. Components which are not being manufactured in the country and which are not expected to be manufactured in the near future, will be identified and permitted to be imported at very low levels of import duty. For other components which are manufactured in the country or can be manufactured within a short period, liberal manufacturing facilities will be allowed to be set up taking advantage of economies of

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scale. Such components will be protected from imports with sufficiently high protective duty. Such duty structures will be recommended from time to time by the Department of Electronics to the Ministry of Finance.

13. The procedure of import of raw materials and components for actual use of the manufacturer would be simplified and expedited. Up to a specified time limit after the registration of import application with the Department of Electronics, the clearance of raw materials will be governed by the IMSC which shall give a decision within two months of the registration of the application.

14. Computers manufactured in the country will be protected from imports through fiscal measures like high protective import duty levels recommended by DOE through the IMSC from time to time. Recommendations will be made to the Ministry of Finance to progressively reduce the import duties in order to encourage reduction in the cost of indigenous manufacture.

15. Procedure will be evolved by DOE through IMSC for making indigenous manufacturers competitive with respect to imports by educational institutions, R&D organisations, Defence establishments and other categories of organisations for which direct import of computers do not attract import duty.

16. A letter of approval will be cancelled if the party does not take effective steps within a period stipulated by the DOE through IMSC.

17. All local manufacturers would be encouraged to provide capability for bilingual (Hindi and English) input-output facility in the computers manufactured by them from 1986 onwards to meet the demand from those who are required to use Hindi under the Official Languages Act.

18. Promotion of applications of computers in any social or economic sector will be carried out by encouraging setting up of System Engineering Companies in the public and private sector without undue constraint as long as the computers and computer subsystems are bought from indigenous sources as available.

19. Within the ambit of the above-mentioned policy framework all details of procedures will be laid down by the DOE through the IMSC from time to time. The DOE through the IMSC is also empowered to steer the implementation and interpret the policies and procedures from time to time.

B. Import

1. The same Inter-Ministerial Standing Committee (IMSC) under the DOE referred to in A(1) will examine the applications for import of computers including import for facilitating software exports. For this latter purpose, IMSC will also have a representative of Commerce Ministry as a Member. All applications should be directly sent to the CCI Wing of the DOE.

2. Import of computers, computer-based systems and computer subsystems like peripherals for integrating with an imported CPU will be permitted only to actual end users.

3. With liberalisation of domestic manufacture, domestic computers will be enabled progressively to compete with imported computers on which a sufficiently high protective import duty will be levied.

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Actual users will be permitted to import standardised EDP systems as complete systems costing less than Rs. 10 lakhs c.i.f. on the basis of liberal procedures by paying a sufficiently high protective duty. This will become effective on 1st April, 1985 when the duty rate will also be announced.

The Department of Electronics will recommend progressively lower levels of duty on such imports from time to time in order to make local manufacture progressively more competitive with respect to equivalent imported systems.

4. For import of computers and predominantly computer-based systems costing more than Rs. 10 lakh c.i.f., the actual user would be required to apply to the Department of Electronics who would examine the application from the point of desirability of applications, essentiality and indigenous availability.

If the use of the computer is desirable and is not available indigenously, the user will be permitted to import at a low level of duty from a standardised list which would be announced periodically by the Department of Electronics. This list would contain between 12 and 18 models and will be periodically updated. The standardised list will be maintained to enable the advantage of bulk purchase and facilitate maintenance and exchange of software. To take advantage of the substantial reduction of foreign exchange for bulk purchase, the Department of Electronics would negotiate with the vendors of the models in the standardised list and execute a rate contract where possible, for a fixed duration of time.

5. Where import of computers or computer subsystems are needed as part of a justified proprietary purchase, or as any special purpose computer not available from indigenous sources, clearance of the Department of Electronics is necessary. A low level of duty would apply.

6. After the clearance has been given by the Department of Electronics for purchase under (4) or (5) above, the user would be free to negotiate directly and take all further procurement action.

7. If for some justifiable special reason, the user wishes to avail of DOE's assistance in the actual procurement of the computer, he may approach DOE for the purpose and come to a proper understanding with DOE on how the computer is to be procured.

8. Import of application software not available commercially in the country would be permitted to actual users with low duty levels on a case to case clearance by DOE. The actual user may avail of OGL facility with a sufficiently high protective import duty for any software after informing, in writing, the Department of Electronics. In addition, where possible, DOE would arrange for centralised import of software for distribution to manufacturers and users on a no-profit no-loss basis.

9. Maintenance of imported computers and predominantly computer-based systems imported will be done either inhouse by the actual user or by the CMC Limited or by any other agency designated by DOE. The DOE designated agency or CMC or the user responsible for the maintenance of imported computer systems, will be permitted to import spares, tools, test equipment and software support for warranty maintenance on the basis of CCP licence if so required.

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10. All import applications will be processed by the DOE through IMSC within two months of the registration of application in the CCI-Wing of DOE in complete form as per proforma notified from time to time.

11. All actual users who have imported computers or purchased indigenous ones who are required to use Hindi under the Official Language Act, will be encouraged to augment their computing facilities for input-output processing of data in Devanagari in addition to English within two years of installation of the system or within two years from the date of this Notification, whichever is earlier.

12. Within the ambit of the above-mentioned policy framework, all details of procedures will be laid down by the DOE through the IMSC from time to time. The DOE through the IMSC is also empowered to steer the implementation and interpret the policies and procedures from time to time.

C. Software Development and Export

1. The Department of Electronics will set up an extensive research, design and development facility. This organisation will be given special encouragement to not only develop knowhow through indigenous efforts, but also import knowhow on a centralised basis where found advantageous and absorb as well as improve on this knowhow on a continuous basis. This organisation would cumulate a standardised menu of knowhow for making them available to interested users and entrepreneurs.

2. DOE will set up a Software Development Promotion Agency to give an impetus to the growth of manpower intensive software development efforts for both exports and local requirements including import substitution as an integrated effort.

3. Effective software export promotion on a sustained basis can be effective in the long run only if it is planned as a part of an overall software promotion scheme covering both export and internal requirements including import substitution. Also, planning for software development is integrally connected with the plan for hardware development and system engineering. The Software Export Promotion Policy of January 1982 will continue to apply but will include the following modifications:

(i) The general structure of 100 per cent export schemes applied as hitherto, will continue to be applicable for computer items.

(ii) Category 'A' and 'B' scheme will be modified as outlined in the Import-Export Policy, April 1984–March 1985, Volume I, Chapter 5, Para 22.

(iii) Category 'C' in the existing Software Export Scheme will continue in its present form except for the following additional provisions:

(a) The following two options will be available to the exporter:
  (i) either complete duty exemption with custom bonding,
  (ii) or, duty payment without custom bonding.

(b) 50 per cent of export earning will be available to the exporter on the same basis as for categories 'A' and 'B'.

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(c) All facilities and incentives available under the 100 per cent software export scheme will be available to Category 'C' scheme also.

(iv) Software exports shall also be promoted through satellite based data links with overseas computers. This will be carried out by DOE in coordination with the Ministry of Communication/P&T Department.

(v) The National Computer Network, INDONET, will be made available predominantly to promote software export from public and private sector enterprises with special consideration for software houses in the small scale sector.

(vi) For import computers under any of the software export schemes, a special low duty window will be provided.

Implementation

1. All the revised policies and procedures outlined above come into effect immediately on the date of issue of this Press Note.

2. Import of computers on the basis outlined in B(3) above will come into force with the announcement of the Import and Export Policy for the period April 1985–March 1986.

3. Notifications concerning specific duty levels applicable until further notice from Ministry of Finance will be issued by them separately.

4. All cases governed by policies and procedures outlined above which are still awaiting notifications in various Government Departments on specific issues, will be processed by DOE in the interim as per present policies and procedures.

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APPENDIX 3.4

Statement on Integrated Policy Measures on Electronics made in Parliament by Shri Shivraj V. Patil, the then Minister of State for Electronics on March 21, 1985.

Hon'ble Members are aware of the beneficial effects electronics has in improving productivity and efficiency in different sectors of our national economy. In fact, electronics can contribute significantly in improving the capital output ratio of several of our projects and investments. It is, therefore, necessary that we use this opportunity to give an added impetus to the economy through this technology. Day by day, the software content of electronics is increasing and India is most appropriately placed to take advantage of this.

Taking all these reasons into account, the Government have decided that there is a need to accelerate the use of electronic equipment such as communication equipment including mass communication, computerised control equipment data communication and data processing equipment. A large country such as ours cannot afford to continue to import such equipment. As such, it is proposed to set a target of local production of Rs. 10,000 crore in the year 1989–90. To achieve this, several integrated policy measures are proposed.

1. *Broad Banding of Industrial Licences*: Henceforth, to optimally utilize the investments, 'broad band' licences will be issued for the following:

(i) Entertainment electronics, covering radio receivers, tape recorders, two-in-one, amplifiers, record players, record changers, TV sets—black & white and colour, CCTV systems, but excluding those reserved for small scale industry;
(ii) Electronic toys, including radio controlled ones and games;
(iii) Computer peripherals;
(iv) Electronic test and meausuring instruments, excluding those reserved for small scale industry; and
(v) Discrete semiconductor devices.

2. *Policy for VCR/VCP and Microwave Ovens*: Keeping in view the approach of producing electronic equipment at near international prices, Government is drawing up an Industrial and Licensing Policy for the manufacture of Video Cassette Recorders/Video Cassette Players and Microwave Ovens on the basis of the following:

VCR/VCP The Department of Electronics or its designated agency will purchase technology for VCR/VCP, including the technology for manufacture of Deck Mechanism. Deck Mechanism including Head/Drum Assembly will be manufactured by a Public Sector Enterprise to be designated by the Department of Electronics. In addition to this, another unit in private sector has already been approved for the manufacture of Deck Mechanism. The existing licensed/registered units which wish to enhance their capacity

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will be asked to apply afresh and their applications will be considered along with other applications.

A minimum complement of production and test equipment, as decided by the Department of Electronics, from time to time, would be required to be installed in each production unit.

Microwave Oven The Department of Electronics or its designated agency will purchase technology for this item. The same approach as given for VCR/VCP Policy will be adopted.

3. *Digital Electronic Watches*: The existing industrial and technology policy for electronic watches had reserved the marketing of Digital Electronic Watches (DEW) to the Central and State Public Corporations. In view of the changed technology, as a result of which very cheap digital electronic watches are now available internationally, the following has been decided:

(a) Semiconductor Complex Ltd. (SCL) would be allowed to manufacture and sell low cost DEW modules to DEW assemblers, both in the State public sector and small scale units, as well as other units engaged in the manufacture of mechanical watches, handicrafts, etc.

(b) The small scale units may be permitted to sell low cost DEW or other DEW module based products directly in the market.

If the demand out-strips the capacity of SCL, a second unit in the private sector will be permitted to manufacture these modules.

4. All consumer durable products mentioned in para 1. (i) above would be de-licensed for applicants who will not draw on the resources of Financial Institutions.

5. *Quality and Reliability*: Government will set up adequate facilities for quality certification of electronic consumer durable goods so that consumers are assured of reliable products.

6. *Liberal Growth*: At the time of issuing industrial licenses for any new product, the anticipated demand in the foreseeable future, as well as the techno-commercial viability, will be kept in mind. The Government will insist on a minimum investment in capital equipment to ensure adequate added value in the country and technology absorption and development. A minimum production capacity will be insisted on. Once a licence has been issued, the licence holder will be assured of liberal upward growth.

7. In approving phased manufacturing programmes, the Government will ensure that reliance on imported populated printed circuit board is reduced and genuine manufacture within the country is encouraged.

8. Indian companies including those with foreign equity of 40 per cent or less, will no longer be debarred from any field of electronics which is open to the organised private sector, only because of their foreign equity holding.

9. *FERA companies*: Government would welcome foreign equity companies (i.e., those having more than 40 per cent foreign equity) to set up manufacturing

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facilities for electronic components, materials and other closely held high technologies, where the country has not been able to invest sufficiently in research and development.

10. Import of technology would be permitted freely to develop an appropriate electronics base in the country. However, industries will be encouraged to establish inhouse technology base so that repeated import of technologies does not have to be resorted to.

11. Centralised purchase of technology will be resorted to only if a variety of technologies renders the indigenous products costly in comparison with international prices, because one of the objectives of this policy is to make equipment available at near international prices.

12. *Location*: Electronics industry will be allowed to be established in any of the permissible locations. Greater efforts will be made to develop electronics industry in the hill districts on a larger scale.

13. *Exemption from Sections 21 and 22 of MRTP Act*: Electronic components (other than all types of integrated circuits, viz., VLSI, LSI, MSI, SSI Semiconductors, Photovoltaic components etc.), computer peripherals, computer software, magnetic tapes for use in computer, video equipment, hard discs, floppy discs and diskettes for computers and test and measuring instruments, are already exempted from Sections 21 & 22 of MRTP Act. This exemption will be extended to the following items—materials for electronics, computers, broadcasting equipment, control instrumentation and industrial & professional electronics, and communication equipment.

14. The Finance Minister, in his Budget Speech, has removed excise duty on 24 types of electronic components, computers and computer peripherals. This is another step in reducing the prices of locally manufactured electronic goods bringing them closer to international levels.

15. *Manpower Development*: Electronics is a knowledge-intensive area and is characterised by rapid innovations as well as obsolescence. A regular supply, in large numbers, of specialised and trained manpower and a continuous updating of the skills of this manpower stock are, therefore, of crucial importance for the growth of electronics, be it in the field of research and development production, maintenance servicing or applications. In the context of Government's declared objective of bringing about a rapid development of the electronics sector the urgent need to devote attention to manpower training in the electronics sector has been increasingly engaging the attention of Government. The various initiatives, steps and programmes being undertaken in this crucial area are summarised below:

(i) Teachers training programme is being initiated at the 5 major institutions, viz., the four IITs at Bombay, Delhi, Kanpur and Madras, and at Jadavpur University, for training teachers in computer science.

(ii) *Teachers Training Programme for Diploma in Computer Application*: This programme has been initiated at six institutions across the country.

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Training for teaching DCA courses is provided through 4 modules of six weeks' duration each.

(iii) Master of Computer Application programme has been initiated in 14 centres.

(iv) The Master's programme in electronics is expected to be started in three universities next year. In addition to the traditional Maths, Physics and Chemistry combination available now at B.Sc. degree level, the introduction of Electronics as separate subject in different combinations has also been finalised.

(v) 28 centres have been identified for starting one-year Post-B.Sc. Diploma in Computer Application, out of which 17 centres have started this course.

(vi) 18-*months Post-Polytechnic DCA Programme in Polytechnics*: This programme has been introduced at 16 centres.

(vii) Training Course in the Industrial Training Institutes (ITIs) in two trades "Console Operator-*cum*-Programme Assistant", and "Data Preparation Assistant", has been finalised for 13 centres.

(viii) *Continuing Education Programme at IIT, Delhi*: The programme aims at providing modular courses of short duration to computer professionals from industry and teachers from academic institutions, 60 per cent of the seats are reserved for teachers. The programme has been started in December, 1984.

16. To plan this industry in an integrated manner and to ensure minimum drain on our foreign exchange, it is necessary to have detailed data from all electronic manufacturers, both in the organised and the small scale sectors. It is, therefore, proposed to introduce a compulsory single proforma which would be submitted by the industrial units, once a year, to the Department of Electronics.

17. In order to speed up scrutiny of proposals by financial institutions, they would be encouraged to set up separate cells for electronics and would be invited to participate in the projects appraisal committees of the Department of Electronics.

18. The Computer Policy announced on 19th November, 1984, will be suitably extended and applied by the Department of Electronics to electronic control instruments, instrumentation and systems, industrial and professional electronics, and data communication equipment.

19. *Components*: Electronic component industry has already been de-licensed *vide* a Press Note issued by Ministry of Industry and Company Affairs on 16th March, 1985. In light of this, entrepreneurs wishing to set up component industries to produce components could register with the D.G.T.D.

20. Government had earlier announced that components need to be manufactured in large volume; it is, therefore, proposed to de-reserve some of the components which today are reserved for the small scale sector.

21. Normally, manufacture of components is not permitted from intermediate levels. However, in the case of bipolar, linear and digital integrated

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circuits where heavy investment are called for, industry will be permitted, to begin with, to assemble from intermediate stage, provided an investment of at least Rs. 5 crore is made.

22. *Communications*: In the area of communications, certain product lines, were thrown open to the private sector as announced by the Deputy Minister for Electronics in March, 1984. As a result of this policy, 5 Letters of Intent for electronic PABXs, and 27 Letters of Intent for electronic telephone instruments have been issued for the Private Sector. One Letter of Intent for the manufacture of electronic teleprinter, two for the manufacture of public telephones, and two for telephone answering and recording machine have also been issued to the Private Sector. It was proposed earlier that for switching systems, private party's participation beyond 49 per cent would not be permitted; however, considering the limitations of the Government's resources and the gap in availability which is likely to emerge in the switching area, it is now proposed to set up an ESS factory using the technology that is being developed indigenously by the Centre for Development of Telematics (CDOT). The investment of the Government is this venture would be restricted to 26 per cent, 25 per cent would be offered to a private sector party and 49 per cent would be thrown open to the general public. Necessary action to modify the Industrial Policy Resolution will be taken.

23. *Research and Development*: In order that our electronics industry in the Eighth Five-Year Plan does not have to depend largely on foreign technologies as is the position today, the Government has taken up several major research and development programmes. It has set up a Centre for Development of Telematics (CDOT), it has been encouraging research through the National Radar Council; it is rendering financial assistance for research in educational institutions and public sector enterprises through its Technology Development Council. It has recently announced the setting up of a National Micro-electronics Council and proposes to set up a Centre for development of materials for electronics.

I am sure with this wide set of measures, the electronics industry should be able to deliver appropriate electronic equipment so vitally needed to improve our productivity and accelerate our economy.

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APPENDIX 3.5

Text of the Policy on Computer Software Export, Software Development and Training Announced by the Union Government on December 19, 1986.

I. Preamble

After the Computer Policy was announced on November 19, 1984, the growth of computer production went up within a year to about 100 per cent in physical terms and 65 per cent in monetary terms and the prices declined by 50 per cent. During the same period the average added value of indigenous manufacturer increased by about 15 per cent. During the current year, the growth rates are increasing even more. This accelerated growth of the computer industry, has posed numerous problems for the software activities calling for a rationalisation of the Policy for import and manufacture of software and using this base for promoting software exports. World trade in computers is expected to be US $ 100 billion by 1990, more than half of which will be in software. Compared to this India's share of software export in 1985 was a mere US $ 30 million. The Seventh Plan target for software export is US $ 300 million which is less than 0.6 per cent of the inter-country trade in software. This clearly underlines the need for formulating a software policy along a liberal framework conducive to long-term growth in software development and exports.

II. Objectives of the Policy

The main basis is that any policy framework and its implementation has to take an integrated view of both local development of software and software export.

The Policy is broadly aimed at accomplishing the following basic objectives:

1. To promote software exports to take a quantum jump and capture sizeable share in international software market.
2. To promote the integrated development of software in the country for domestic as well as export markets.
3. To simplify the existing procedures to enable the software industry to grow at a faster pace.
4. To establish a strong base of software industry in the country.
5. To promote the use of computer as a tool for decision making and to increase work efficiency and to promote appropriate applications which are of development catalysing nature with due regard for long-term benefit of computerisation to the country as a whole.

III. Import Policy for Promoting Software Development and Export

A programme for promoting computer software development, particularly for export, is in operation in the Department of Electronics since 1972 under the Software Export Scheme. This scheme is now modified for greater effectiveness and simplicity of operation as follows:

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1. For an organisation setting up an export-oriented software company and requiring import of hardware and/or software of computer/computer based systems for the purpose, foreign exchange requirement for such import can be met through any combination of the following options in any proportion:

A : From the Government of India
B1 : Through Non Resident Indian participation
B2 : With FE entitlement as a result of excess exports
B3 : With foreign participation
B4 : Through any other source permitted by Reserve Bank of India

2. The imports under this software export scheme will have software export obligation equal to 250 per cent of FE used under option A *PLUS* 150 per cent of FE used under options B1 to B4, to be fulfilled in a four year period. The export obligation for software developed for export on indigenous computers would be zero per cent.

3. The use of the imported computer system may be in any proportion of domestic and export activities.

4. Fulfilment of the export obligations will be met by the net foreign exchange earned. Net foreign exchange earned for this purpose is defined as foreign exchange inflows as a result of software exports less foreign exchange outflows on account of expenditure other than initial hardware and/or software import.

5. Computer software export will include besides physical export on magnetic media or on paper, also export through satellite data link and consultancy delivered at the location of foreign client abroad by Indian computer expertise.

6. Software exporters will be encouraged to fulfill their export obligation as fast as possible. However, minimum levels of cumulative export over the four years period will be:

By the end of 2nd year	20 per cent of export obligation
By the end of 3rd year	50 per cent of export obligation
By the end of 4th year	100 per cent of export obligation

7. Each year, if the company does not show export performance as given above, the amount falling short of the differential obligation will be paid to the Government of India as penalty.

8. The export obligation will start from the date on which custom clearance for the first consignment of imports is obtained.

9. In case of import of old computer system, the value of equivalent new computer system will be taken for determining the export obligation.

10. In case of import of computer system on lease basis, the foreign exchange outflow for this purpose will be taken as CIF value of an equivalent imported computer as determined by IMSC for determining the export obligation.

11. In case of use of computer system, data bases and services located abroad, the extent of export obligation will be decided by IMSC on a case to case basis.

12. The following conditions will apply to imports under the above scheme:

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1. The import will be exempt from NMI clearance.
2. The import of computer systems for software exports would normally be permitted on outright purchase and actual user basis.

or

The computer systems will also be permitted to be imported on lease basis for software export projects.

or

Software companies will also be permitted to use/access computer systems, software and data bases located abroad *via* satellite data links for their software export projects.

13. The import under the software export scheme will be nontransferable and on actual basis.

14. Customs duty of 60 per cent of ad-valorem will be charged for the imports under software export scheme. In case of EXIM Bank scrutinised proposals, where bank is undertaking the financial and technical analysis as well as monitoring the progress of exports, a custom duty rebate of 50 per cent would be provided. All computers imported for 100 per cent export would be eligible for zero per cent duty subject to custom bonding.

15. Indian EXIM Bank will also provide foreign exchange to software exporter for imports. The export obligation in this case will be 350 per cent of FE used and will be fulfilled in a four year period starting from the date on which the custom clearance for the first import consignment was made. The Government clearance procedures will be maximally simplified by clearance issued by Chairman, IMSC normally based only on EXIM Bank recommendation. Each year, if the company does not show export performance as shown in para III(6) above, twice the amount falling short of the obligation will be paid to EXIM Bank in rupees as penalty. The exact details of this scheme will be notified by EXIM Bank separately.

16. When software export is made through a dedicated earth station/satellite links, the following additional terms and conditions will apply for that part of the export of the company which makes use of the dedicated earth station/ satellite links:

(i) Export obligation will be determined by IMSC on a case to case basis.
(ii) Security and communication arrangements will be determined by a Standing Sub-Committee of IMSC with representatives of DOE, DOT, OCS, MHA and MOD as members.
(iii) Satellite links can be used only for 100 per cent export activities. All imports connected with this will be exempted from duty.
(iv) Declaration of exports shall be made on a Special Export Declaration Form notified by RBI in lieu of the GR form.
(v) The Government of India can terminate the approvals/clearances given for the use of the dedicated earth station/the satellite links without

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assigning any reason whatsoever and without any liability to Government if it is deemed necessary in the national interest.

17. Software exporters can augment an imported computer system by upto 20 per cent of the CIF value of the original import either through their own FE or after completing 20 per cent of the export obligation. Such imports will have further export obligation similar to the originally imported system.

IV. Policy for Software Import

1. Software Development is labour intensive. Cost of local development of software would intrinsically be several times less than the cost of development of the same in developed countries. However, where standard software package/ modules are sold in very large numbers abroad, their import will be cheaper than local development. In view of this, for any category of software, uniform fiscal protection of 60 per cent ad-valorem on the price of the software plus the price of the media on which it is imported would be adequate. Any software in any media in any number of licensed copies will be permitted to be imported on OGL either by an actual user or by a computer manufacturer or by a software company on stock and sales. Neither NMIC nor DOE concessional duty certificate would be required.

2. If software is imported with permission to copy/duplicate without payment of royalty, the duty of 60 per cent ad-valorem will be on this one time payment.

3. If software is imported with permission to copy/duplicate upto a specified maximum number of copies the duty of 60 per cent ad-valorem will be levied in advance on the royalty payable on this maximum number in addition to initial one time payment, if any.

4. As software is governed only by copyright act the royalty remittance rules and procedures will be identical to those applicable to licensed copying/duplicating of Copyrighted books.

5. Technology Development Fund (TDF) of Ministry of Industry can be used for Software Import for captive use.

V. Excess Export Entitlement

1. 30 per cent of excess software export earnings made over and above the export obligation can be made use of by the software exporter for importing new computer systems, Software and Hardware subsystems and/or augmenting his existing computer installation and office equipment and computer spare parts. This import will be aimed at taking up further software exports and will be subject to actual user condition and export obligation of 150 per cent of CIF value of import.

2. The excess export benefit provision can be accumulated for a period of three years. The software exports made after 1-4-1984 will only be taken into consideration for this purpose.

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VI. Foreign Collaboration and Foreign Investment

1. Foreign collaboration and/or foreign investment in software development activity for exports and/or domestic markets will be permitted as per provisions of FERA.

2. Software development for domestic market will be permitted to wholly owned Indian companies and companies having foreign equity upto 40 per cent.

3. Companies with foreign equity exceeding 40 per cent will be permitted only for 100 per cent export projects.

VII. Marketing Abroad

1. Software exporters will be permitted to pay commission to foreign firms/ distributors/retailers for their services towards marketing, training, installation, after sales support in the foreign markets.

2. Software exporters will be permitted to establish joint ventures and/or marketing subsidiaries and offices abroad for effective promotion of Indian Software products and services in foreign markets.

3. Software exporters generally need to incur reasonable level of expenditure on foreign tours, setting up of foreign offices, getting experts from abroad, obtaining drawing/designs, payment of commission rates, etc. For expenditure on such items a unit will be permitted an FE allocation of 30 per cent of its net foreign exchange earnings in the previous year; however, the allocation for the first year will be decided based on the recommendations of IMSC. All these FE allocations would be in the nature of blanket permits by the RBI

VIII. Research and Development

1. The Department of Electronics will launch extensive research, design and development programmes in Government, Public and Private sectors in frontier areas of computer technology to enable India to compete in the world markets on long-term basis.

2. As import substitution, specific software packages will be identified for development, which otherwise would have to be imported.

3. Software houses and manufacturers will be encouraged to establish R&D groups to undertake new R&D projects and to absorb the imported know-how. R&D projects in software area will be given the same incentives as available to industrial R&D.

IX. Excise Duty

The computer software will continue to be exempted from excise duty as in the past.

X. Industrial Framework for Policy Implementation

As provided for in the Computer Policy (para C. 2) of 19 November, 1984, the Department of Electronics has already set up a Software Development Agency.

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This agency will coordinate the implementation of this policy, monitoring the performance of software exports, and taking up activities to promote the integrated growth of software industry for domestic as well as export markets.

XI. Financing

1. There is a need for understanding the very nature of software development business, where the main asset of the software company is brain power. Therefore, DOE will support financial institutions evolving dynamic norms for risk financing and for making available venture capital for computer professionals.

2. The Department of Electronics will support the financing of software development and export projects by nationalised banks and financial institutions on the pattern of the scheme outlined in para III-15.

XII. Procedures

1. The Inter-Ministerial Standing Committee (IMSC) of the Department of Electronics will function as an effective instrument for single point clearance and for coordination of action of all cases of software development and software export.

2. For software export project, the entrepreneur will apply to CCI-Wing of DOE in the form prescribed in Appendix III-C of Handbook of Import and Export Procedures 1985–88. The proposal will be considered in IMSC and the decision will be conveyed directly by IMSC to the applicant within a period of six weeks. For cases under EXIM Bank Scheme applications should be directly submitted to the EXIM Bank.

3. All applications for import licence/custom clearance permit in format prescribed by CCI&E will be sent directly to CCI-Wing of DOE. The import licence/custom clearance permit for import of the computer/computer-based systems will be issued by JCCI&E at Headquarter who will be delegated full powers to issue import licence on the recommendations of IMSC. He will be a member of IMSC.

4. In the case involving foreign collaboration and foreign investment, IMSC will examine and recommend the case direct to Chairman, FIB, for necessary approval.

5. Software exports will be eligible to all direct tax benefits as available to the other types of exports.

6. An empowered representative of the Department of Telecommunications will be a member of IMSC. Clearance of the proposal by the IMSC will entitle the applicant to a telephone/telex connection and facilities for satellite link up and data communication including Modem connection on priority allocation.

7. DOE will register the software development organisations engaged in software development for export purposes.

8. A legal bond/undertaking will be executed by the software exporter with Government of India for export obligation.

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XIII. Legal Protection of Software

The software is protected in India under Copyright (Amendment) Act, 1984, Clause 2(c).

XIV. General

1. The software development activity aimed for domestic market or for inhouse use will be delicensed in cases where such activity does not require the computer system to be imported.

2. Software development for inhouse use or by charitable institutions or by Government/fully Government financed organisations or by non-profit R&D organisations or by non-profit educational institutions or by non-profit non-commercial organisations will be treated as Consultancy Services. All other software development activities will be regarded as industry. Any additional definition for categorisation under this purpose will be decided by IMSC.

3. A depreciation rate of 40 per cent will be allowed in case of computer system imported or locally purchased under the Software Export Scheme.

4. In case the software exporter fails to comply with the conditions subject to which the import is allowed, he will be liable to action under Imports and Exports (Control) Act, 1947, as amended, Imports-Exports Control Orders and other provisions connected therewith.

5. All the major users of software, while floating tenders/enquiries will also contact software houses for their software requirements in addition to computer manufacturers.

6. Foreign exchange earned on account of software export will be entitled to Cash Compensatory Support (CCS) as per prevailing rates and procedures.

7. Progress of software exports would be monitored closely. DOE will furnish every month detailed information on all the applications for software exports and the progress of action thereon to the Cabinet Secretariat and to the Ministry of Commerce for being placed before the Empowered Committee of Secretaries on Exports; information in regard to volume of software exports will be furnished by DOE on a quarterly basis, for which DOE may stipulate to the exporters to furnish all necessary information. For all EXIM Bank cases, EXIM Bank will undertake the monitoring of implementation of the projects and the actual volume of exports and will send quarterly reports to DOE and the Cabinet Secretariat.

XV. Policy on Training

1. Policy on Training of Computer Software and Services Personnel will be as follows:

(a) *Departmental Institutions* The Department of Electronics in consultation with the Department of Education and UGC, will set up a chain of four Indian Institutes of Informatics Technology (IIITs) in each of the four regions of the country and respectively affiliated institutes in each of the State capitals. The

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chain of super computers/mainframe computer/super mini computers and mini/micro computers and the specialist personnel of the National Informatics Centre as part of its nationwide network, NICNET, would form the basic infrastructure which will be utilised by IIITs and their affiliated institutes. The chain of these four IIITs and the affiliated institutes will have the status equivalent to National Institutes like IITs and would be run and managed on similar pattern. The training will be a long modern concepts like computer-aided instruction, computer network-based open university system, computer aided aptitude evaluation and testing, modular training systems, etc.

(b) *Sponsored Projects* The Department of Electronics has Plan Programmes for promoting centres for computer education and training within publicly funded educational institutions. DOE also sponsors the running of courses like M.Tech., M.C.A., Post-Graduate Diploma in Computer Science, Teachers Training Courses, etc. As a policy, the Plan allocation made available to the Plan Projects will commensurate with the gap in manpower estimated over the following five years.

(c) *Private Sector Education and Training Institutions* Private sector education and training institutions will be encouraged by the Government with the following set of incentives provided they comply with the obligations listed hereunder:

Incentives

(i) Computer systems, hardware and/or software designed for computer aided instruction will be allowed for import at a duty of 60 per cent.
(ii) Programmed texts and graphic material in computer media will be allowed for import on OGL at a duty of 60 per cent.
(iii) Foreign exchange to the extent of US dollar 5,000 per 100 man-years of computer related training by the institution subject to a maximum of US dollar 10,000 per annum will be made available for any of the following purposes:

(a) Hosting foreign experts in computer related areas from abroad subject to normal security clearances.
(b) Buying of consultancy from abroad in Education Technology in computer related areas.
(c) Importing training equipment and Educational aids on OGL for captive use.

These imports are duty free and without production of NMI Certificate.

(iv) The institutions who pass the actual quality and service standards stipulated by a special body set up/entrusted by the Department of Electronics, would be permitted to use the title, "Recognised by the Department of Electronics" in the certificates/diplomas awarded to the trainees by the institution.

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(v) Institutions recognised by Department of Electronics under (iv) above, will be eligible for Income Tax deductions as per IT Rules applicable to Charitable organisations/institutions.

Obligations

(i) The institution shall have a minimum level of infrastructure of equipment and full time faculty as prescribed by DOE or DOE designated body from time to time.
(ii) The trainees at different levels will be given a specified minimum hands-on experience on computers as laid down by DOE from time to time.
(iii) DOE will issue prescribed syllabi for various courses/training modules from time to time, as broad guidelines.
(iv) The institution shall allow quality certification procedures of DOE to be carried out. Only the organisations passing the "quality of training" evaluation, will be eligible for utilising incentive (iv) and (v) above.
(v) Where necessary, DOE will conduct or arrange to conduct through designated organisations, local/national level examinations with paper setting and evaluation.
(vi) At least 50 per cent of the enrolment in the computer courses/training of the institution will be on the basis of merit (including a specified quota for Scheduled Caste/Scheduled Tribe candidates) as per norms prescribed by the Government from time to time. For such candidates, the benefit of standard course fees stipulated by DOE will be made applicable by the institution.

XVI. All interpretations of the definitions and provisions of this policy and resolutions of disputes, if any, arising therefrom, will be decided by the IMSC.

XVII. This policy comes into force with immediate effect except for those provisions where necessary notifications need to be issued by the concerned Government Departments.

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4

NATIONAL ENERGY POLICY

INTRODUCTION

At the beginning of modern civilisation the energy resources were natural ones—falling water, wind, etc. Main energy source was fire from the burning of wood which was chiefly used in heating, cooking etc.[1] Gradually, man's perpetual search for new sources of energy brought fossil fuels. Coal became the first fossil fuel to be used as a source of energy and it became the instrument of Industrial Revolution. With the discovery of oil, it became a strong competitor to its sister-fossil fuel, coal. With the advance of science and technology, other sources of energy like hydel power and nuclear power started finding their ways and establishing their relative positions in the usable energy source spectrum.

Energy has acquired a vast dimension by taking different forms such as heat energy, electrical energy, mechanical energy, chemical energy, nuclear energy, electromagnetic energy, etc. These different forms of energy are derived from different sources like fossil fuels (oil, coal and gas), bio-mass, flow of water and winds, solar radiation, nuclear reaction, etc. One form can be converted into another form of energy. In fact solar energy is the original source of life on the planet earth. This energy is converted by plants into substance which enables them to grow until they are, in turn, consumed by animals. All our chemical fuels like wood, coal, oil and natural gas are derived from plant and animal life that grew because of the action of the sun.[2] The present century is the age of machines, which have invaded virtually all aspects of man's life. Man has, it is said, become slave to machines. Since machines require energy to work, it is said that we are living in the era of 'energy culture'.

Energy—A Vehicle of Economic Growth

Energy is a vital infrastructure of economic development. There is a close correlation between the per capita GNP of a country and the per capita energy it consumes.[3] It is a well-established fact that energy and economic growth go hand in hand. In fact, some economists regard energy as the fourth factor of production in addition to land, labour and capital.

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[1] Maheshwar Dayal: *Energy Today and Tomorrow*, New Delhi, Publications Division, Ministry of Information and Broadcasting, Government of India, pp. 4–5.

[2] *Ibid.*, p. 11.

[3] Fremont Felix: "Growth of Energy Consumption and National Income throughout the World," (*IECE Spectrum*, July 1964, p. 81).

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Energy inputs such as electric power and coal are required to support a growing industrial sector. The ready availability of cheap energy serves to stimulate industrial development. Energy, thus, can be called as the fuel of economic growth; conversely progress in energy intensive industrial development will lead to increased energy production and consumption per capita. Increased living standards lead to increasing energy consumption because of the comfort needs that must be satisfied by energy intensive devices such as automobiles, airconditioners and other electrical appliances.[4] Inadequate energy supplies could inhibit economic growth. It could affect a wide range of activities in both the agricultural and industrial sectors. Coal shortage causes curtailment in steel production and electric power generation. Fertilizer production may also be affected by inadequate energy supply. Oil crisis causes disruption in transport and industrial activity.

In addition, uncertainty regarding future availability and the cost of energy could be a deterrent to investment in energy intensive activities. Conversely, expectations of abundant energy supply at reasonable costs could provide a stimulus to investment. Therefore, both current production levels and investment levels which reflect future production potential are dependent on reliable energy supplies. Energy supply policy should therefore, be, an important consideration for development planners since adequate supplies of energy are an important component of sustained economic growth.[5]

In India the concept of energy as *Shakti* has been almost at the focus of philosophic, scientific and metaphysical thought from time immemorial. *Shakti* causes the great universal movements of the stars and the planets and on our Earth, the great natural movements of wind and waters. *Shakti* is also at the origin of fire, heat, light and power to enable men and animals and plants to grow and work. Numerous references in India's ancient literature and books can be found for the study and analysis of the concept of *Shakti* which is also, sometimes, made synonymous with the Supreme Being. Indeed, philosophically the old Indian analysis of *Shakti*, had also dealt with energy creating matter and being created from it. Some similar concepts of energy have been arrived at by the discoveries of modern theoretical and experimental physics, including the inter-changeability of mass and energy and the unified theory for the different basic forces of nature, as known to physics.[6]

India today consumes energy from many sources. At the present state of scientific and technical knowledge, these may be put under five categories. Four of these can be grouped under a general category of 'Commercial energy'. These are: coal; oil and natural gas; hydroelectric power; and nuclear fuels, both actual and potential. A fifth category forms 'non-commercial energy' resources, so called because much of it is ordinarily not bought or sold at any rate in recorded transactions. In this last category, the most important item is

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[4] Wallace E. Tyner: *Energy Resources and Economic Development in India*, p. 2.
[5] *Ibid.*, p. 6.
[6] Maheshwar Dayal, *op. cit.*, pp. 3–4.

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forest resources, which provide the basis for a considerable volume of firewood and charcoal consumption. The other main forms of non-commercial fuels are vegetable wastes, chiefly consisting of crop residues and dried cow dung. There are other possible sources of energy which are, as yet, largely untapped. The main examples are solar energy, geothermal energy, tidal energy and wind energy.[7]

In India, non-commercial sources, as yet, supply a very big proportion of its energy needs. India's agriculture is still largely dependent on the use of animals. Animate energy from bullocks, camels, horses etc. and muscle power of human labour are used in India as sources of mechanical energy to perform various functions such as lifting water, transporting goods and passengers tilling land and performing other agricultural operations. Contribution of energy from this source is quite large in India and may not be lost sight of while considering certain energy specific issues like the use of energy in the agriculture sector or the transport sector.

Owing to the emphasis on industrialisation in the country after independence changes are occurring in energy sources. The share of energy obtained from traditional sources is decreasing in the overall energy requirement. The Indian energy supply sector is in a state of transition, as commercial fuels are gaining dominance over non-commercial fuels. Although the former has grown at a faster rate than the latter one, they are yet to make a dent in the total energy consumption in the domestic energy sector. According to 18th National Sample Survey, the annual rate of growth of non-commercial energy consumption was about one per cent as against commercial energy in the domestic sector growing at 5–6 per cent. It may be noted that while non-commercial energy constitutes a major portion of total energy consumed in rural areas, commercial energy forms a larger share in the total consumption in urban areas. It has been found that in the metropolitan centres in India 66.8 per cent of the total energy consumption in the domestic sector was met from commercial fuels, compared to 91.1 per cent coming from non-commercial sources in rural areas.[8] It is significant that while the relative share of non-commercial energy in the total energy consumption has gradually diminished over the last few decades, there has been an increase in the absolute quantity of non-commercial energy consumed.

It has been observed that the largest share of commercial energy is consumed in the industry sector. The transport sector is the second largest consumer of commercial energy and accounts for about 30 per cent of the commercial energy consumed. Industries and transport together account for nearly three-fourth of the commercial energy consumption. This share has changed only marginally over time during last two decades. Energy consumption in agriculture sector has registered the sharpest rate of growth and its share increased

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[7] P. D. Henderson: *India: The Energy Sector* (A World Bank Publication, 1979), p. 6.

[8] V. S. Mahajan: *Energy Development in India*, New Delhi, Deep and Deep Publishers, 1983, pp. 16–17.

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from 3 per cent in 1953–54 to 11 per cent in 1978–79. A part of the increase was due to substitution of animate and manual power by commercial energy. The increase in commercial energy use in all the sectors is the result of three determinants, *viz.* substitution of non-commercial forms, increase in intensity of use of energy and increased level of activity.[9]

ENERGY RESOURCES IN INDIA

Coal

India's major workable coal deposits occur in two distinct stratigraphic horizons—the Upper Palaeozoic (Permian) commonly called "Gondwana" coals, and the "Tertiary". As per GSI (Geological Survey of India) assessment upto 1.1.88, the ratio of Gondwana and Tertiary worked out to 99.5:0.5 approximately. Other than Peat and Anthracite, practically all ranks of coal are found in India. The share of Lignite is, however, insignificant, Indian coal is characterised by high ash content and majority of ash is residual product of mineral matter. But Tertiary coal is better in quality compared with Gondwana coal. The Tertiary coal has lower ash content while the bulk of sulphur found in it is organic. Such coals are hybrid between coal and oil and are eminently suited for liquefaction to oil by hydrogenation.

Occurrence

Major coalfields in India are confined to the Gondwanas and situated between the latitudes 17°–25° N and longitudes 78°–87° E covering an area of approximately 26,000 sq.km. One additional economic advantage of our coal-bearing areas is that they are mostly situated along the river valleys, namely, the Damodar, Son, Koel, Mahanadi, Wardha-Godavari and the Narmada. The coalfields are Raniganj (West Bengal); Jharia, Giridh, East and West Bokaro, Ramgarh, North and South Karanpura (Bihar); Talcher Ib-river and Hingir (Orissa); Singrauli, Umaria, Jhilmili, Soharpur Jhagrakand, Chirimiri, Korba, Pathekara, Pench-Kanhan valley (Madhya Pradesh); Wardha valley (Maharashtra); Godavari valley (Andhra Pradesh).

The tertiary coalfields are located in Assam and in other eastern States and in Jammu and Kashmir. But the most important one is that in the Upper Assam area.[10]

Estimates of coal reserves vary significantly with source of estimate and especially through time. For example, in 1922, the Geological Survey of India (GSI) estimated coal resources at 25.6 billion tonnes of which only five billion

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[9] Government of India, Planning Commission: *Report of the Working Group on Energy Policy*, New Delhi, 1979, p. 7.

[10] R. K. Pachauri (ed.): *Energy Policy for India*, Delhi, Macmillan Company of India, 1980, pp. 326–327.

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tonnes were considered proved reserves. In 1972, GSI estimated total coal reserves at 83 billion tonnes and in 1978, it was put at approximately 86 billion tonnes. Estimates made in 1983 by the bureau of Industrial Costs and Prices, brought it out upto over 120 billion tonnes of coal seams of the thickness 0.5 metre and upto a depth of 1200 metres which approximates the original estimate of 120 billion tonnes made by Cyril Fox in 1934.[11] In 1985 the reserves were estimated to be 155.9 billion tonnes.

The coal reserves of India as per assessment made by the Geological Survey of India on 1.1.88 are 170460.54 million tonnes for coal seams of 0.5 metre and above in thickness down to a depth of 1200 metres.
The category-wise reserves are shown in Table 4.1.[12]

Table 4.1
Coal Reserves

(In million tonnes)

Type of Coal	*Proved*	*Indicated*	*Inferred*	*Total*
Gondwana	49247.39	70352.12	50019.78	169619.29
Tertiary Coals	128.89	220.08	492.28	841.25
Grand Total	49376.28	70572.20	50512.06	170460.54

Production and Demand

In 1987–88 India produced 179.75 million tonnes of coal. At the beginning of the century coal met 90 per cent of the world's energy requirements which declined with coming of petroleum based technology. The demand for coal in India also declined. In 1970–71, the production of coal was 72.95 million tonnes and it met only 31 per cent of India's total industrial requirements of energy (see Table 4.2).

In early seventies there was a sharp rise in the demand for coal. This coincided with both industrial growth and the oil crisis. The production of coal which was 179.75 million tonnes in 1987–88 is expected to go upto 417 million tonnes in AD 2000. The level of coal production had remained stagnant around 100 million tonnes for several years prior to 1980–81. As a result of measures initiated to increase production, there was a distinct spurt in coal production in 1980–81 to 114.0 million tonnes. This tempo has been maintained since then.

An important factor impeding the growth of coal production is the low productivity of labour. Coal output per manshift in India is a little over one tonne which is poor by international standards. Low productivity is partly due to the low level of mechanisation in coal industry. But the performance has

[11] Vadilal Dagli: *Natural Resources in the Indian Economy*, Bombay, 1971, p. 186.
[12] Information received from the Department of Coal, Government of India.

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Table 4.2
Coal Production, 1955–2000.[11]

(In million tonnes)

Year	*Actual Production*	
1955–56	38.30	
1960–61	53.80	
1965–66	67.80	
1970–71	72.95	
1973–74	78.17	
1976–77	101.04	
1979–80	103.95	
1982–83	130.22	
1983–84	138.38	
1984–85	147.45	
1985–86	154.24	
1986–87	165.79	
1987–88	179.75	
1988–89	196.28	Projected
1994–95	325.50	"
1999–2000	417.00	"

been below par even in areas where mechanisation has been introduced. The country has a long way to go to realise the full potential of the long wall faces that have been introduced in some collieries. Similarly in open cast mining, the utilisation of equipment like dumpers and excavators leaves room for improvement.

The coal demand for 1988–89 had been assessed as 202 million tonnes. The production target had been kept at the level of 196.28 million tonnes keeping in view the planned draw-down from stocks. The demand of coal for the year 1988–89 had been arrived at by assessing the demand of various individual consuming sectors and aggregating the same. The sector-wise break up of the demand as estimated by Planning Commission is given in Table 4.3.

Coal Industry through Five-Year Plans

First Five-Year Plan (1951–56)

The emphasis of the First Five-Year Plan was on a physical and chemical survey of the nature and quality of coal seams in the various coalfields. The Coal Grading Board drew up a classification of Indian coal mainly for purposes of export. The Planning Commission recommended legislation for enforcement of stowing for conservation in addition to safety, washing and blending. These were assigned the highest priority in the interest of conservation of high grade

[11] *Ibid.*, and *Indian Coal* published by Department of Coal, Government of India.

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TABLE 4.3
Demand in 1988–89[14]

(In million tonnes)

Sector	*1988–89*	
Steel (including Coke Ovens)	31.00	(4.00)
Power Utilities	104.00	
Railways	7.00	
Cement	11.50	
Fertiliser	5.20	
Soft Core/LTC	3.00	
Brick & others including Captive Power	36.00	(2.00)
Export	0.30	
Colliery Consumption	4.00	
	202.00	
	(6.00)	

NOTE: Figures in brackets indicate requirements of washery middlings to be produced by beneficiation (washing) of coal for steel.

coking coal. Taking into consideration the commission's recommendations, the Government of India introduced the Coal Mines (Conservation and Safety) Act, 1952. In pursuance of Section 4 of the Act, the Central Government established a Coal Board. The Board was to examine all questions relating to coal from a comprehensive point of view and make recommendations in regard to the evolution and execution of a coordinated coal policy.[15]

Second Five-Year Plan (1956–61)

In this plan, increased coal production was given priority in the development of mineral resources in India. The estimated demand of coal at the end of the plan period was about 60 million tonnes which was not fully achieved. Initially, Rs.40 crore were allocated to the effort.

This plan had also provided Rs 6 crore to establish coal-washeries to supply coal of uniform quality for steel production. The Second Plan called for more detailed geological surveys of existing coalfields and new potential coal producing areas.[16]

Third Five-Year Plan (1961–66)

Although the Second Plan goal of producing 60 million tonnes of coal per year by 1960–61 was not met, production in the last quarter was at an annual rate of

[14] Information received from the Department of Coal.
[15] Government of India, Planning Commission: *First Five-Year Plan*, pp. 389–392.
[16] Government of India, Planning Commission: *Second Five-Year Plan*, p. 378.

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about 60 million tonnes. Hence, capacity existed at the beginning of the Third Plan to produce 60 million tonnes annually. The aim of this plan was to increase this to an annual rate of 97 million tonnes by the end of the plan. Of the 37 million tonnes in additional production capacity, 20 million tonnes were to be achieved in public sector and 17 million tonnes in private sector. Because the government policy was to reserve new mines for public sector, the private sector's share was to be met from the expansion of existing mines and leaseholds. This plan also called for increased conservation of coking coal.[17]

Fourth Five-Year Plan (1969–74)

Because of the decreased rate of industrial growth brought about by the 1965 war and the agricultural slow-down caused by the 1966–67 drought, the estimated 1973–74 demand for coal was put at 93.5 million tonnes, which was less than that previously estimated for the end of the Third Plan. During the Fourth Plan, production of coking coal was scheduled to increase from 17 million tonnes to 25.4 million tonnes to meet the capacity requirements of the planned industrial investment. High priority was given to investments expected to achieve this increase in coking coal production. The situation with respect to non-coking coal was less critical. Production capacity of non-coking coal was expected to increase from 65.2 million tonnes to 68.1 million tonnes by the end of the Fourth Plan. Therefore only small investments were needed to achieve that increase in production capacity. Also, during the Fourth Plan, production of lignite from the Neyveli project in Tamil Nadu was planned to increase from 4 million tonnes to 6 million tonnes to provide coal for the increased power generation capacity at the Neyveli Power Station. The total investment in coal production envisaged for the Fourth Plan including both continuing and new schemes amounted to about Rs. 110.53 crore.[18]

Fifth Five-Year Plan (1974–79)

In consonance with the broad policy frame for the energy sector drawn by the Fuel Policy Committee, the Fifth Plan envisaged a production target of 12.4 million tonnes (4.5 million tonnes of lignite) by 1978–79. Purchase of standardised new plants and equipments and various technical, managerial and administrative improvements together with a favourable industrial climate had resulted in higher production of coal and provision was made to export 2.5 million tonnes of coal in 1978–89.[19]

Sixth Five-Year Plan (1980–85)

The target of coal production was set at 152 million tonnes in the terminal year (1984–85) of Sixth Plan, making an increase of 10 per cent over the actual

[17] Government of India, Planning Commission: *Third Five-Year Plan*, pp. 5185–27.
[18] Government of India, Planning Commission: *Fourth Five-Year Plan*, pp. 321–22, 328.
[19] Government of India, Planning Commission: *Fifth Five-Year Plan*, pp. 64–65.

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production in the preceding year. Production of coal during the Sixth Five-Year Plan has been shown in Table 4.4.[20]

Table 4.4
Trend of Coal Sector during the Sixth Plan (1980–85)

(In million tonnes)

Year	*Target*	*Production*
1980-81	113.5	114.0
1981-82	121.0	124.0
1982-83	133.0	130.22
1983-84	142.0	138.22
1984-85	152.0	147.40
1985-86	158.0	154.24

Seventh Five-Year Plan (1985–90)

At the time of formulation of the Seventh Five-Year Plan an analysis of the sectoral requirement of coal gave an overall demand estimate of 237 million tonnes in 1989–90. During mid-term, the Planning Commission has estimated the coal demand as 220 million tonnes in 1989–90 against a production of 212 million tonnes, the balance to be obtained from stocks. Production of 212 million tonnes as now targetted gives an annual growth rate of about 8.8 per cent during the Seventh Plan against 7.2 per cent achieved during the Sixth Plan.[21]

Lignite

Lignite is also used to produce power in India. About 90 per cent of total lignite resources in the country are at Neyveli in South Arcot District of Tamil Nadu. The total reserves are placed at 3833.36 million tonnes of which 2,000 million tonnes are in proved category. The other lignite bearing States in India are Gujarat, Rajasthan, Pondicherry and J&K where resources of the order of 457 million tonnes have been indicated by GSI.

At the end of the Sixth Plan lignite production in the country was raised to 7.8 million tonnes (Neyveli—7.1 million tonnes, Gujarat—0.7 million tonnes) from a level of 3.15 million tonnes in 1979–80. In the Seventh Plan period output would be raised to 15.2 million tonnes (Neyveli—13.7 million tonnes; Gujarat—1.5 million tonnes). The major lignite development schemes included in the Seventh Plan are as follows.

Neyveli

(i) A second lignite mine which was initially sanctioned for 4.7 million tonnes was further approved during the Sixth Plan for expansion to

[20] Source: *Economic Survey*, 1984–85, *op. cit.*, pp. 17–18.
[21] Information received from the Department of Coal.

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10.5 million tonnes. The mine is expected to be commissioned in 1990.

(ii) Resulting from detailed exploration carried out, additional reserves have been established in the adjoining area of the first mine. Installation of 1500 MW. Thermal Station (3×500 MW) at the pit-head of third mine at a cost of Rs. 1401 crore (December 1983 price).

(iii) Opening up of a third mine for a capacity of 11 MT/annum at a cost of Rs. 1208.0 crore (December 1983 prices).

Gujarat

Mechanisation of the open-cast mine at Panandhro for increasing the production to about 1.5 million tonnes will be completed in the State Sector. The lignite is proposed to be used in a pit-head station.

Rajasthan

Preliminary exploration taken up in several areas indicated total possible reserves of 362 million tonnes and detailed exploration work taken up in the Sixth Plan will be continued. Apart from the State Government, several agencies like NLC, GSI, etc. would continue to be involved in the exploration programme. A mine of 1.7 million tonnes capacity a year is under consideration for approval.

For the various programmes of development in the coal and the lignite sectors, a provision of Rs. 7400.58 crore has been made in the Central outlay of the Plan.[22]

POWER

Electricity is the most popular secondary form of power in the world due to its versatility and convenience. Its consumption continues to grow every year in every country. For a variety of reasons the rate of growth of electricity has been the highest as compared to all other sources of commercial energy. New uses for this form of energy are being discovered rapidly. Future of mankind depends on the expansion of industrial system by a skilful and extensive use of electrically powered machines. Electric power is one of the key factors in determining the magnitude of progress which a country can achieve. Electricity is produced on a large scale commercially from coal, oil, gas, water and fissile materials.

Hydropower

India is endowed with several ranges and large river systems which suggest vast hydropower resources. The river system of the country has been divided into

[22] *Ibid.*

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six great basins. These are the west-flowing rivers of Southern India, east-flowing rivers of Southern India, rivers of Central India, Ganga basin, Brahmaputra basin and the Indus basin. These main basins have been sub-divided into a number of river basins having a large number of sub-basins etc. These divisions are based on hydrological, geographical and other factors and do not represent either equal areas or equal amount of work involved.

Hydro-electric Potential

The hydro-electric resources of a country are often estimated as a theoretical upper limit of the hydropower potential that could be developed, were it possible to utilise all run-off water. In a more practical context, an assessment of hydro-electric potential is made corresponding with the technical feasibility of developing such a potential. Thus the assessed hydropower resource is subject to change due to changes in technology and economic conditions.[23] There is an economically viable limit of the hydro-electric potential which, besides the technological factor, is dependent on construction cost of hydro-electric power projects and the cost of the power generated with reference to other alternative sources of energy.

The first systematic survey of India's hydro-electric potential was undertaken during 1953–59 by the Power Wing of the then Central Water and Power Commission. These studies placed the hydro-electric potential of the country at 221 TWH. The scope of the survey covered a systematic assessment of the economically feasible hydro-electric potential of the country, based on the data of topography, development techniques, hydrology, etc. then at hand. It was felt that under Indian conditions, it would not be very meaningful to estimate the theoretical potential of the hydel resources. The flows in the Indian rivers vary very widely from thousands of cusecs in the monsoon season to a few cusecs in the dry season. The generation capacity and size of the grids in the initial stages made regulatory facilities essential to a much greater degree than today for the absorption of usable power from Indian river sources and the limits of regulations set by topography, etc. formed important constraints in technical and economic feasibility. Problems of submergence as well as water requirements for priority uses such as irrigation, industry and households also have an impact in the actual magnitude of utilisable power potential. In view of these, the estimation of hydro-electric potential resources was done by identifying specific schemes in each river basin with potential for hydropower generation and having features, which would be technically feasible and economically viable. Potential sites were identified and the hydrological data were developed with rainfall data and the limited data on water run-off, that were available at that time. Technical feasibility and economic viability were considered with reference to the quantity and nature of the physical works required and the physical proportion of the civil works in relation to the benefits.[24]

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[23] M. Sengupta: *Energy and Power Policies in India*, New Delhi, S. Chand & Co., 1985, p. 19.
[24] *Report of the Working Group on Energy Policy, op. cit.*, p. 22.

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With the availability of further hydrological and topographic data, advances in design and construction, technology and changed energy economics it was felt necessary to undertake studies for the re-assessment of the hydro-electric resources of the country. These re-assessment studies were taken up by the Central Electricity Authority in April, 1978 and were completed in March 1987. As a result of these studies, the hydro-electric potential has been assessed as about 84,000 MW at 60 per cent load-factor from 845 medium and major schemes identified. Despite the inherent advantage of hydro-electric power plans over thermal and nuclear plants, only 19 per cent of the total hydro-electric potential is either developed or is under implementation. Government accorded due priority to the utilisation of this power potential but its development was subject to various factors such as constraints of financial resources, interstate issues, environmental and rehabilitation problems, long gestation periods and dependence of generation on monsoon conditions, etc.

Reducing Gestation Periods of Hydel Power Projects

Certain studies on long-term power planning have revealed that the overall cost of meeting power demand in the country will become more expensive without adequate hydel back up. It has been found that the average gestation period of the hydel projects has increased. It would, therefore, be necessary to adopt following corrective measures during the course of Seventh and successive plans for timely implementation of the projects:

(a) better assessment of geological and environmental factors;
(b) strengthening of construction agencies in terms of equipment, organisation, technical know-how and skilled manpower;
(c) deployment of optimal equipment, both qualitatively and quantitatively, for various activities;
(d) arranging on lease basis large and costly machinery for construction agencies; and
(e) regular flow of funds.[25]

Thermal Power

There has been a phenomenal growth in power generation by way of installation of coal based thermal power houses in the country. As the hydro-generation is dependent on vagaries of nature, thermal generation plays an important role in providing reliable and continuous sources of power. It, therefore, becomes more important to improve the performance of thermal power stations and maximising the thermal power generation in order to meet the growing power needs. The thermal power plants contributed 57 per cent of the total installed generating capacity in the country at the end of Fifth Plan which went up to 63.47 per cent at the end of Sixth Plan and 63.23 per cent at

[25] *The Seventh Five-Year Plan, op. cit.*, p. 330.

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end of 1987–88 and it is likely to go up to 67.7 per cent at the end of Seventh Plan.[26]

Production Capacity

Total installed capacity of thermal power in the country was 35,652 MW (Utilities) as on March 31, 1988. The derated capacity of thermal power plants was 31,415.9 MW at the end of 1986–87 against the installed capacity of 31,739.3 MW in the same period. Region-wise break-up for the year 1986–87 has been provided in Table 4.5.[27]

Table 4.5
Installed and Derated Thermal Capacity by Region

Region	*Thermal Capacity (MW)*	
	Installed	Derated
1. Northern Region	7801.9	7774.9
2. Western Region	12177.3	12078.2
3. Southern Region	4522.5	4522.5
4. Eastern Region	6647.1	6488.2
5. N.E. Region	574.8	539.8
6. Islands	16.7	12.3
All India	31739.3	31415.9

CEA: Installed Generating Capacity (Utilities)

New thermal units are coming up near coal pit-heads and the Seventh Five-Year Plan 1985–90 envisages addition of a total thermal capacity of 17,070 MW during the Plan period. Thermal power units of various capacities commissioned during 1987–88 are given regionwwise in Table 4.6.

Table 4.6
Thermal Power Capacity by Region

Region	*Thermal Capacity (MW)*
Northern Region	1530
Western Region	1750
Southern Region	420
Eastern Region	210
N.E. Region	2
Total All India	3912

[26] Information received from the Ministry of Energy.
[27] *Ibid.*

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The energy generation during 1987–88 registered a growth of 7.6 per cent over 1986–87. The growth in thermal generation was 16 per cent over 1986–87. For the year 1987–88 the total actual thermal generation was 149464 million units against the target of 143 billion units. This was 16 per cent more than the thermal generation in the year 1986–87.[28]

Plant Load Factor of Thermal Units

Plant load factor during 1987–88 recorded an all time high figure of 56.5 per cent. The trend of plant load factor during the last 13 years is indicated in Table 4.7.[29]

TABLE 4.7
Plant Load Factor, 1975 to 1988

Year	*PLF (%)*
1975–76	52.1
1976–77	55.4
1977–78	50.9
1978–79	47.9
1979–80	44.3
1980–81	44.2
1981–82	46.4
1982–83	49.4
1983–84	47.9
1984–85	50.1
1985–86	52.4
1986–87	53.2
1987–88	56.5

Measures taken to Improve the Performance of Thermal Units

On April 12, 1983 in reply to a question, Lok Sabha was informed of the following measures taken by the Government to improve the performance of thermal power stations in India:

1. Deficiencies in respect of layout, design and engineering, manufacture, erection and commissioning were being rectified.
2. New collaborations had been entered into for a number of plants and equipment to up-date existing technology.
3. In the case of newly-commissioned 200/210 MW units, renovation teams constituted for this purpose are drawing action plans for rectification of stabilisation problems and these were being implemented by Station Authorities.

[28] *Ibid.*
[29] *Monthly Thermal and Hydel Performance Review*, March 1988.

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4. Plant betterment programmes had been undertaken to renovate and modernise the various items of plants and equipment including environment.
5. Measures to supply uniform quality of coal to power stations by crushing coal at mines before loading into wagons, beneficiation of low grade coal linked to distant power stations and hand-picking of extraneous materials like shales etc., had been initiated.
6. Due to high cost involved in the road transportation of coal, road haulage of coal was being minimised and most of the coal was hauled by rail. Unit trains and bottom discharged wagons had been introduced and merry-go-round systems were being adopted for short hauls of coal at pit-head stations.
7. Efforts were being made to indigenise imported spares to the maximum extent, particularly fast moving spares. In the case of indigenously manufactured equipment, 20 per cent of capacity in the various manufacturing units was being set apart for manufacture of spares.
8. For training of personnel for various categories of maintenance and operation of large thermal stations, a Power Engineering Training Society has been constituted with training Institutes attached to it. These Institutes conduct, on regular basis, full time courses for personnel deputed from various States. Condensed courses on specific requests were also conducted.

It was stated that these steps were under different stages of implementation. With a view to speeding up plant betterment programme and covering larger area of renovation, a massive renovation and modernisation programme was launched all over the country since September 1984. This programme covers 34 thermal power stations comprising 164 generating units (having ratings of 140 MW and below as also certain 200/210 MW units not giving satisfactory performance in the previous 3 years or so) aggregating to a total capacity of 13,585 MW. An amount of Rs. 500 crore has been sanctioned by Government of India for providing Central Loan Assistance to various SEBs/Organisations to supplement their efforts for renovation and modernisation programme. The expected benefits after full implementation of the programme in terms of generation will be about 7000 MU per year which is equivalent to about 1400 MW new additional capacity and in terms of improvement in PLF, it will be on the average 7 per cent. The programme at present is under various stages of implementation and is expected to be completed by end of the Seventh Five-Year Plan. The Plant Load Factor which is an index for maximisation of generation of the existing capacity and improved considerably.[30]

National Thermal Power Corporation (NTPC)

The National Thermal Power Corporation (NTPC) was incorporated in November, 1975 as a public sector undertaking with the main objective of

[30] L. S. Deb., 12.4.1983, USQ No. 7079.

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planning, promoting and organising the integrated development of thermal power in the country. The Corporation has been entrusted with the task of execution and operation of thermal power projects and associated transmission lines. The NTPC is presently engaged in execution/operation of eight Super Thermal Power Projects of an aggregate installed capacity of 11,740 MW and three gas-based combined cycle power projects of an aggregate installed capacity of 1,630 MW. In addition, about 17,615 ckt. km of associated transmission lines, including 910 ckt. km of HVDC transmission lines, are being set up. The aggregate approved cost of the NTPC projects under execution including the associated transmission systems is Rs. 12,277 crore. The Public Investment Board has recommended for Government's approval the setting up of the first stage of Talchar Super Thermal Power Project (1000 MW) in Orissa at an estimated cost of 1291.46 crore, including associated transmission system.

Corporate Plan, 1985–2000

NTPC's perspective Plan envisages creation of 27,920 MW capacity by the year 2000 A.D. at 12 super thermal power stations along with associated transmission systems. With this commissioning programme and including Badarpur Station, NTPC will have 13 power stations in operation by the year 2000 A.D. with a total of 82 units comprising 41 units of 500 MW, 38 units of 200/210 MW and 3 units of 100 MW. In addition, NTPC will be operating about 25,000 ckt. km of EHV transmission system. The commissioning rate envisaged by NTPC is approximately two-thirds of the rate achieved by the Central Electricity Generating Board (CEGB) of the United Kingdom, one of the largest utilities in the world during its peak period of growth.[31]

Nuclear Power

The Indian Atomic Energy Programme was launched mainly to supplement the limited conventional energy resources to meet the long-term power needs of the country and to utilise nuclear techniques in agriculture, industry, medicine and other areas. The Father of nuclear power programmes in India, Dr. Homi Bhabha, had claimed long before that 70 per cent of the energy requirements of India could be met by Atomic Energy.

It has been estimated that although capital cost of nuclear power plants is 25 per cent more than thermal plants it would, however, be advantageous from overall system point of view to establish large Nuclear Power Plants at sites located away from coal bearing areas. Besides, India has vast resources of Uranium and Thorium. The Uranium resources in the country are estimated to be about 70,000 tonnes, the thermal reactor-equivalent of about 1,900 million tonnes of coal. This resource alone will be equivalent to 120 billion tonnes of coal, if used in breeder reactors. The long range potential of nuclear energy in India depends on Thorium whose reserves exceed 3,60,000 tonnes. When used

[31] Information received from the Ministry of Energy.

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in breeder reactors, this resource would be equivalent to 600 billion tonnes of coal which is about five times the coal reserves of India. Thus, Thorium can be viewed as the single most important energy resource in the long term.[32] In view of this it was decided to tap the atomic energy source for generating electricity in a big way to meet the evergrowing needs of the country.

In 1981, nearly 9 per cent of the world electricity was being generated from nuclear power (Table 4.8). The corresponding figure for India was 2.4 per cent. At present out of total installed power capacity in the country, nuclear power constitutes 2.6 per cent.

TABLE 4.8
World Distribution of Power Generation from Nuclear Energy

Country	*% of Share of Atomic Energy (1981 figures)*[33]
France	37.7
Finland	35.7
Sweden	35.3
Switzerland	28.1
Belgium	25.3
Bulgaria	24.7
Japan	17.3
FRG	14.6
U.K.	12.7
U.S.A.	11.9
Canada	10.0
Pakistan	5.5
India	2.4

The AEC has in 1968 envisaged commissioning of 2700 MW of nuclear power capacity by 1980. By 1980, however, a total capacity of only 860 MW was installed.[34] This shortfall, according to the Department of Atomic Energy, had been due to two constraints, *viz.* limited industrial infrastructure capable of supporting the nuclear programme and the restrictive practices in international trade in nuclear materials such as enriched Uranium, Heavy Water and spare parts for power plants. Present installed nuclear power generation capacity of 13.00 MW is expected to reach 2270 MEe with the commissioning of some more units presently under construction at Kalpakkam (Tamil Nadu) Narora (U.P.) and Kakrapar (Gujarat).

The Department of Atomic Energy has come out with a fifteen-year nuclear

[32] For details see the Brochure on *National Nuclear Energy Programme*, New Delhi, Lok Sabha Secretariat, 1989; and *Seventh Five-Year Plan*, *op. cit.*, p. 283.

[33] Eighty-Second Report of Estimates Committee (1983–84) (Seventh Lok Sabha) on DAE-Generation of Electricity, p. 3.

[34] *Ibid.*

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power profile for the achievement of the target of 10,000 MWe of nuclear power generating capacity by the year 2000, which would then represent about 6 to 8 per cent of total electrical generating capacity in the country.[35]

India is among six countries of the world after USA, USSR, France, UK and Canada which can design, construct, commission and operate a nuclear station all on its own. Almost 88 per cent of the cost of an Indian nuclear reactor now represents local cost. One of the disadvantages, at present, is the very long time taken to complete nuclear power-projects. If this period could be compressed, nuclear power will emerge as a viable alternative source compared to other forms.

Development of Nuclear Power through Five-Year Plans

It may be noted from Table 4.9 that the outlay for the development of atomic power generation has been going up through successive Five-Year Plans.[36]

Table 4.9
Atomic Energy Outlay in Five-Year Plans

Plan	*Rs. (crores)*
(a) Third Five-Year Plan	51
(b) Fourth Five-Year Plan	132
(c) Fifth Five-Year Plan	231
(d) Sixth Five-Year Plan	451
(e) Seventh Five-Year Plan	1410

It shows that there had been about 900 per cent increase in outlay for the development of atomic power generation from Rs. 51 crore in the Third Plan to Rs. 451 crore in the Sixth Plan. Geographical location of various nuclear power stations and increase in financial outlays for this sector indicate the Government's policy to develop nuclear power particularly in regions located at great distances from the main coal-bearing areas. There was no specific allocation in the first plan for nuclear energy development. By the beginning of the Second Plan, India was committed to the development of her atomic energy raw materials and implementation of nuclear energy electric power generating facilities. An atomic reactor at Trombay was scheduled for completion early in the Second Plan. A number of projects were planned for exploration, extraction or processing nuclear raw materials. The Third Plan included a provision for establishing a nuclear power plant and called for expansion of research in atomic energy. Rupees 35 crore were allocated to the Department of Atomic Energy for research, and Rs. 51 crore for constructing the atomic power plant.

[35] Government of India, Department of Atomic Energy: *Annual Report* for 1984–85, p. 4; Pamphlet on Atomic Energy in *India Today*.
[36] *Estimates Committee, 82nd Report, op. cit.*, p. 9.

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In addition, scientific research in a large number of related areas was expanded significantly.

Investment in nuclear energy continued in the Fourth Plan with a planned total of Rs. 64.3 crore. Most of this amount was allocated to the expansion or continuation of schemes for production or processing of atomic minerals, production of electronic equipment, or research and development. In addition, more funding was provided for basic research in atomic energy under allocations to research institutions like the Council of Scientific and Industrial Research. During the Fifth Plan, 705 million kilowatts of nuclear generating capacity was scheduled to be completed. In addition, the Atomic Energy Commission planned to construct a prototype 40 megawatt Fast Breeder Thermal Reactor. This reactor was to use plutonium and thorium for fuel and convert the thorium into fissile material in the process.[37]

The target of installed capacity for nuclear power during the Sixth Plan was 690 MWe, out of which 455 MWe was achieved with the commissioning of the second unit of Rajasthan Atomic Power Station in April, 1981 and Madras Atomic Power Station Unit-I in July, 1983. In addition to a Nuclear Power Profile, which aims at achieving 10,000 MWe by the end of the Century, the Seventh Plan envisages commissioning of MAPP-II and two units of 235 MWe each at Narora. Work on Kakrapar project is expected to be completed in 1990–91. The Plan outlay also includes the provision for four new units of 235 MW each to be commissioned in Eighth Plan. Work on design of the next higher size of 500 MWe has been provided for in the Plan and would be expedited.[38]

Electric Power—An Overview

Energy resource development was not considered as a unified topic in any of the Five-Year Plans. In addition, the grouping of energy investments changed from plan to plan reflecting changes in administrative organisation. The earlier plans contained a section on irrigation and power which covered investments in hydro and thermal power plants. The Fourth and Fifth Plans separated irrigation and flood control from power investments. Coal resource development was discussed under the heading of mineral resource development. Oil and natural gas resource investments were covered under industrial development or a similar classification, and investment in nuclear energy were included in scientific, technical, and industrial research or the power category. Thus, each energy resource was considered together with the use for that energy or as a part of the industrial or development sector to which it was attached.[39]

Installed capacity of electric power generation at the time of independence stood at 1360 MW in utilities. One of the first steps taken just after independence

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[37] Wallace E. Tyner, *op. cit.*, pp. 43–44.
[38] *Seventh Five-Year Plan*, *op. cit.*, pp. 332–333.
[39] Wallace E. Tyner, *op. cit.*, p. 32.

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was to restructure the power supply industry to rationalise power development and orient it to be complementary to overall economic progress.

Development of Power through Plans

In the First Plan a total of Rs. 558 crore was allocated to electric power development and irrigation. The total planned outlay for power development in Second Plan was Rs. 470 crore. Total investment in Third Plan for electric power generation and distribution was planned at Rs. 1089 crore of which Rs. 1039 crore were to be in the Public Sector. During Fourth Plan outlay for power generation for Public Sector was Rs. 2447.57 crore. During Fifth Plan total target of power generating capacity was 12,499 MW, of which generating capacity of 10,202 MW was achieved at the end of the Plan period. Fifth Plan included four Super Thermal Power Projects based on coal, each planned for an ultimate installed capacity of 2000 MW. The Sixth Plan provided an outlay of Rs. 3600 crore for the programmes of the Department of Power out of an allocation of Rs. 19,265 crore for the power sector. The total outlay for power sector in Seventh Plan is Rs. 34,273.46 crore, in which Centre's share would be Rs. 11051.54 crore. Cumulative installed capacity of power generation by the end of the Seventh Plan (after midterm appraisal) has been placed at 64,823 MW of which 19,110 MW will be contributed by Hydro, 43,913 MW by Thermal and 1800 MW by nuclear energy.[40]

Investment in power development as indicated above has steadily increased through the seven Five-Year Plans. It has grown both as per cent of planned investment and as proportion of actual public sector expenditure. The first two plans focussed attention on the development of water resources and hydro-power development. Several major hydro-electric projects were taken up during this period. A significant amount for new thermal power development was also included. During the Second Plan, the average annual increase in generating capacity was about 11.5 per cent utility. During Third Plan and three Annual Plans, electricity generating capacity grew at an average annual rate of about 14.2 per cent (utility) and about 12.8 per cent (utilities). During the first three Plans installed electricity generation capacity grew at an average annual rate of about 11.7 per cent (utilities). The Fourth and Fifth Plans laid emphasis on rapid expansion of power supply facilities. The need for participation by the Central Government in establishing power generation facilities was felt and organisations were created under the Central Government to establish major hydro and thermal power projects in various regions of the country to supply bulk power to the constituent State systems in each region. The installed capacity increased by 49.4 per cent during Sixth Plan period.[41]

The growth of electricity generation in utilities has more or less kept pace with the growth of installed capacity. It steadily increased from 5.1 TWH in 1950–51 to 130.3 TWH in 1982–83 and to 156.6 TWH in 1984–85. There have

[40] Information received from the Ministry of Energy.
[41] *Seventh Five-Year Plan*, *op. cit.*, p. 327.

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been some shifts in the shares of various modes of generation. The share of hydro-electric power generation was in the range of 45 to 50 per cent upto 1968–69, but afterwards it began to decline and came down to 34.0 in 1984–85 and it would be 29.5 in 1989–90 (Table 4.10).

TABLE 4.10
Installed Capacity (million kW)

Year	*Hydel*	*Total*	*% Share*
1960–61	1.91	4.65	41.1
1970–71	6.38	14.71	43.4
1980–81	11.79	30.21	39.0
1984–85	14.46	42.58	34.0
1985–86	15.47	46.77	33.1
1986–87	16.20	49.26	32.9
1987–88	17.26	54.25	31.8
1989–90*	19.11	64.82	29.5

*Provisional.

A matter of concern is the decreasing proportion of hydro capacity in the generation mix, particularly since 1970–71. Consequently, the emphasis of the Government is on greater attention to the development of hydro capacity in the country. This has become particularly necessary for increasing availability of peaking power in all the regions.[42]

Target for 1994–95

Considering the present status of committed and new power projects it seems feasible that the total installed generating capacity of power plants in the country can be raised to a level of about 103,000 MW by the year 1994–95 with an addition of around 45,000 MW of Thermal Power, 14,000 MW of Hydro-power and 1,400 MW of Nuclear Power in Seventh and Eighth Plans.

Level of Power Generation

Actual power generation in the utilities during the various Plan periods is shown in Table 4.11.[43]

Power Shortage

In spite of increase in power generation, supply continues to lag behind demand. The deficit in power supply in relation to requirements had declined from 14.1 per cent in 1974–75 to 10.9 per cent during 1987–88 (Table 4.12).[44]

[42] Information received from the Ministry of Energy.
[43] *Ibid.*
[44] *Ibid.*

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Table 4.11
Power Generation in Five-Year Plans

Plan	*Actual Generation (MU) in the Terminal Year*
First Plan (1951–56)	8,592
Second Plan (1956–61)	16,937
Third Plan (1961–66)	32,990
Fourth Plan (1969–74)	66,689
Fifth Plan (1974–79)	102,523
Sixth Plan (1980–85)	145,013
Seventh Plan (1985–90)	252,000 (Anticipated)

Table 4.12
Requirement, Supply and Shortage from 1974–75 to 1987–88

Year	*Requirement (GWh)*	*Supply (GWh)*	*Shortage*	*% Shortage*
1974–75	77600	66647	10953	14.1
1975–76	83508	74909	8599	10.3
1976–77	88489	83365	5124	5.8
1977–78	102180	86343	15837	15.5
1978–79	108535	97349	11186	10.3
1979–80	118370	99302	19068	16.1
1980–81	120118	104932	15186	12.6
1981–82	129245	115274	13971	10.8
1982–83	136849	124225	12624	9.2
1983–84	145284	129693	15591	10.7
1984–85	155432	145013	10419	6.7
1985–86	170746	157262	13484	7.9
1986–87	192356	174276	18080	9.4
1987–88	210993	187976	23017	10.9

The power shortage was experienced generally by all the States in varying degrees. Major reasons for power shortage are as follows:

(i) Substantial increase in demand, and
(ii) Extension in commissioning schedule of new projects.

The shortfall in achieving the targets of new generating capacity had been mainly due to:

(i) Financial constraints,
(ii) Delay in placement of orders,
(iii) Delay in supply of plant and equipments,

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(iv) Delay in completion of civil works,
(v) Unsatisfactory industrial relations, and
(vi) Weak project management.

The following steps were being taken to bridge the gap between requirement and supply:

(i) Expediting the commissioning of on-going generation projects,
(ii) Maximising the generation from existing power stations,
(iii) Reduction in transmission and distribution losses,
(iv) Augmenting generating capacity, and
(v) Assistance to procurement of coal of the requisite quality and quantity.

Per Capita Power Consumption

The national average of per capita power consumption during 1986–87 was 190.99 units (kWh) as compared to 168.52 and 177.9 units (kWh) in the years 1984–85 and 1985–86 respectively. In 1986–87, per capita consumption was highest in the Western Region and lowest in the N.E. region which was 275.07 units and 50.15 units respectively. Among the States Punjab had the highest per capita consumption of 481.40 units and in the Union territories, Delhi had the consumption of 559.51 units per capita during 1986–87 (provisional) followed by Chandigarh.[15]

Transmission and Distribution of Power

At the time of launching the First Plan, only about 8,300 circuit km of high voltage lines of 66 kV and above and 21,000 circuit km of 11/33 kV lines existed in the country. Today, the country has an extensive network of high voltage lines totalling about 1,80,000 circuit km and over 12 lakhs circuit km of 11/33 kV lines. Efforts are also being made to adopt higher voltage transmission lines as in other parts of the world. The 400 kV technology was introduced for transmitting power over long distances and the first 400 kV line from Obra to Sultanpur in U.P. was commissioned in 1978. The NTPC (National Thermal Power Corporation) and NHPC (National Hydroelectric Power Corporation) are also executing various centrally sponsored projects in different parts of the country. They have collaborated technically and financially with some foreign companies also in this regard. For the smooth exchange of power amongst different States and regions, inter-state/inter-regional transmission lines are also being constructed under the centrally sponsored schemes since 1969.

National Power Grid

The concept of the 'National Grid' is for facilitating effective central control over transmission system. Steps are now being taken to form a National Power Grid

[15] *Ibid.*

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in the country. It will promote integrated operation and transfer of power from one system to another with the ultimate objective of ensuring optimum utilisation of resources in the country. India has now well integrated regional power systems. Exchange of power is taking place regularly between a large number of State systems and this greatly facilitates better utilisation of the existing capacity.

Transmission and Distribution Losses

The average T&D (Transmission and Distribution) losses in the country increased from 19.26 per cent in 1977–78 to 21.14 per cent in 1982–83 and to 21.50 per cent in 1986–87. The main reasons for the high losses include low power factor of the systems, inadequate distribution systems, long sub-transmission and distribution lines with several transformation stages, pilferage of energy, etc.

Power Economy Committee has called for an improvement in the distribution system by reducing line losses and improvement in the voltage level and reliability of power supply to the consumers. Steps are being taken presently to minimise T&D losses in the country. States have been asked to prepare Master Plans for rationalising the development of distribution system, draw up system improvement schemes, tighten up administrative measures and control, etc. Reduction of T&D losses has been included in the new 20 Point Programme which is being vigorously monitored.

Electricity Boards

Regional Electricity Boards were set up in 1964 in each of the five regions for the development of integrated operations initially between the States of the region, with the ultimate aim of forming a well-knit national grid. The five regional electricity boards are: Northern Regional Electricity Board, Western Regional Electricity Board, Southern Regional Electricity Board, Eastern Regional Electricity Board and North-Eastern Regional Electricity Board.

Regional Load Despatch Centres (RLDC), have been established in each region to co-ordinate the activities of State Load Despatch Centres in the regions so as to ensure optimum utilisation of the generation and transmission facilities in the regions. Modernised computer based despatching equipments have been installed in the RDLCs of Northern, Western and Eastern Regions. Modernisation of facilities in the Southern and North-Eastern Regions is underway.

State Electricity Boards have been established in 18 out of the 25 States and they are mainly responsible for generation and distribution of electricity in their respective States.

Central Electricity Authority

The Central Electricity Authority is a statutory organisation constituted under Section 3(1) of the Electricity (Supply) Act, 1948. The principal functions of the Authority are:

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— formulation of short-term perspective plans for power development;
— techno-economic appraisal of power projects;
— to advise State Governments, Electricity Boards, Generating Companies and other agencies on operation and maintenance of the power system in an efficient and co-ordinated manner and monitor their performance;
— to monitor the progress of schemes under implementation and assist in their timely completion;
— to render consultancy services in different areas of electricity; and
— promotion of research in matters relating to electricity.

Thirteenth Power Survey

The Thirteenth Power Survey Committee which has submitted its report in December, 1987, has estimated that the demand for power would grow at the rate of 9 per cent annually from 1987–88 to 1994–95. According to the report of the Thirteenth Power Survey Committee, there is likely to be a peaking shortage of 11,293 MW by the year 1994–95. The power availability has been worked out on the basis of a capacity addition programme of 38,000 MW during the Eighth Plan period.[46]

Committee on Power (Rajadhyaksha Committee)

On November 22, 1983, the then Minister of Energy informed the Lok Sabha that Government of India had constituted a high level 'Committee on Power' in 1978 under the Chairmanship of Shri V. G. Rajadhyaksha to examine all aspects of the functioning of State Electricity Boards and Central Organisations engaged in electricity generation, transmission and distribution including organisational structure, management practices, planning systems, efficiency of operations, financial performance, tariff structure and legislative framework and to make recommendations for improving them. The 'Committee on Power' submitted its report in September 1980. The Committee made a total of 303 recommendations. These related to power sector planning and project formulation and implementation, operation and maintenance of power plants, financial performance of State Electricity Boards (SEBs), rural electrification, research and development, organisation and management of power supply industry. The Committee also made several recommendations to improve the overall operational performance of the thermal power stations; to enlarge the role of the Centre in generation and EHV transmission; to strengthen the organisation of the power supply to industry; and to improve the overall management of the SEBs. The Committee also made certain recommendations regarding rationalisation of tariff structure and higher financial rates of return to be earned by the State Electricity Boards.

Most of these recommendations were within the competence of the State

[46] *Ibid.*

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Governments, SEBs and Central Agencies engaged in the generation of power. Suitable communications and guidelines had already been issued to State Governments/SEBs and other concerned agencies in respect of 158 recommendations. Certain recommendations involved statutory changes and were to affect relative roles of the Centre and State Governments. The States had expressed their reservations against implementation of the structural changes recommended by the Committee.[47]

OIL AND NATURAL GAS

Oil is a versatile fuel which is used for a variety of purposes in all the sectors of the economy. Besides being an energy source, oil is also an important raw material for production of petro-chemicals and fertilisers. During the sixties when the real price of oil was declining while the other fuel prices were rising, there was a higher rate of growth of oil in most countries and oil came to be used even for purposes which were traditionally the areas of use of coal. The major share of total consumption of oil products is accounted for in the transport sector. In India, where electricity supply is yet to be extended to many rural areas and many houses are unelectrified, oil (kerosene) serves as the most important illuminant. It is found that over 80 per cent of the total oil used in the energy sector is in two sectors, *viz.*, transport and household sectors. While the share of the use in household sector is declining, the share in the transport sector is rapidly increasing. The increasing share of agriculture, where oil is used to run tractors and irrigation pumps, is a development which would continue in the future also.

Oil is used in power generation also both as a primary fuel and as an auxiliary fuel. In certain locations very close to refineries established in the initial stage, some power plants were set up to make use of the residual fuel oil from the refineries. These oil burning stations are being converted gradually to coal burning. The oil use in power generation would slowly increase even though technically all the additions to thermal power capacity would be coal-based. Oil is also used for non-energy purposes such as feedstock for petro-chemicals and fertilizers. The share of oil products used directly for energy purposes is slowly declining while the use of oil for non-energy uses is increasing. With the increase in price of oil products, the use of oil for energy purposes might steadily decline, if alternative fuels are developed at lower prices.

Unlike coal and electricity, a major portion of the oil required in the country is being imported from outside either as crude oil (for refining within the country) or imported as directly usable oil-products. As a result of the far-sighted policies followed in the country in the face of tremendous odds in the past, both in terms of production of crude and indigenous refining capacity, there has been appreciable progress. India was one of the earliest among the

[47] L. S. Deb., 22.11.1983, USQ No. 1318.

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developing countries to realise the need and the feasibility of moving towards self-reliance in oil technology from the stage of exploration to the stage of refining.

Exploration

Though oil exploration in India had begun in 1866, systematic and extensive oil exploration started only after the setting up of the Oil and Natural Gas Commission (ONGC) in 1956, Oil India Limited (OIL) set up on October 14, 1981 became the second public sector undertaking engaged in the exploration of Oil and Hydrocarbon in a planned and coordinated manner. In order to supplement the efforts of ONGC and OIL, some reputed foreign oil companies are invited to take up exploration in certain selected blocks. Keeping in view the need for indigenisation, Indian companies are also being asked to collaborate with those foreign companies to offer services to ONGC and OIL in the field of exploration and production.

Most of the exploratory activities upto early 1960s were concentrated in Cambay basin and Upper Assam Shelf. The token efforts made in other basins resulted in the discovery of same small gas pools in isolated reservoirs of Tripura, Rajasthan, and Jwalamukhi area of Himachal Pradesh. Remarkable success was achieved in the early seventies in the offshore leading to discovery of a number of large and small oil and gas fields including the well known Bombay High oil field and Bassein gas field. The exploration programme of the late 1970s and early 1980s yielded some success in finding oil and gas in the Andamans, Krishna-Godavari and Cauvery basins.[48]

Production and Consumption

Increased efforts in the field of oil exploration and production have paid dividends by way of increased production of crude oil. Starting from a modest level of indigenous crude oil production of around 0.25 million tonnes and consumption of 3.4 million tonnes in 1950–51, crude oil production and consumption during 1984–85 reached 28.99 million tonnes and 35.56 million tonnes respectively.[49] (See Appendix 4.2.) These have further increased to 30.36 and 47.74 million tonnes respectively in 1987–88.

Import and Export

Till the early fifties, India depended mostly on import in the form of oil products for meeting its demand. With the establishment of more refineries, there was a shift in the import from oil products to crude oil. With the general increase in domestic production, the share of import began to decline (see Annexure III). The import of crude oil declined from 16.25 million tonnes in

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[48] *Seventh Five-Year Plan, op. cit.*, 1281.
[49] *Ibid.*

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1980–81 to 13.64 million tonnes during 1984–85. The trend was maintained in the case petroleum products also. India imported 7.29 million tonnes of petroleum products in 1980–81 which came down to 6.1 million tonnes in 1984–85. But the crude oil import again increased and became 18.04 (Prov.) million tonnes in 1987–88. Interestingly, India exports crude oil and petroleum products to Bahrain, Singapore, USA, UK, Australia, Holland, Italy, France and Spain. The trend in net imports of crude oil and petroleum products since 1981–82, which reflected the savings in foreign exchange on the import bill is seen in Table 4.13.[50]

TABLE 4.13
Savings on Crude Oil and Petroleum Product Imports, 1981 to 1987

Year	*Savings (in crores of Rs.) (Import–Export)*
1981–82	4,978.18
1982–83	4,400.52
1983–84	3,223.74
1984–85	3,527.06
1985–86	4,315.67
1986–87	3,361.66
1987–88 (prov.)	3,389.33

Indian Oil Corporation is the canalising agency for export of crude oil.

Import Substitution

In the field of import substitution and foreign exchange conservation, ONGC has successfully identified a number of items for indigenous manufacture. Various import substitution measures had resulted in savings of substantial amounts of foreign exchange.

Reserves

The prognosticated resources of hydrocarbons are about 17 billion tonnes of which 63 per cent are offshore and 37 per cent onshore. Out of these, upto 1.1.1984 the established geological reserves of hydrocarbons were 4 billion tonnes. About half of the theoretical hydrocarbon reserves are in the form of natural gas and only 10 per cent of these could be established so far. Crude oil balances recoverable reserves have increased from 366 million tonnes in 1980–81 to 581 million tonnes in 1987–88.

[50] Information received from the Ministry of Petroleum and Natural Gas.

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Oil and Gas in Seventh Plan

Oil Production

Total exploratory metreage of about 2821 thousand metres has been planned in Seventh Plan. It involves a step up of 192 per cent on the Sixth Plan achievement of 963 million tonnes of geological reserves of oil and 497 billion cu. metres of geological reserves of gas.

ONGC would be stepping up crude oil production from Cambay and Upper Assam and Nagaland areas. This increase in oil production would be due to further development of various fields. There would be doubling of oil production from ONGC areas of Upper Assam and Nagaland. From onland areas of ONGC the total production of crude oil during the Seventh Plan would, therefore, be 41.33 million tonnes against the production of 26.66 million tonnes during the Sixth Plan. OIL would produce annually 3.03 million tonnes during the first four years of Seventh Plan, increasing it to 3.38 million tonnes by 1989–90. Thus, OIL would be producing 15.50 million tonnes of oil during the Seventh Plan against 12.74 million tonnes in the Sixth Plan.[51]

Therefore, a total of 159.14 million tonnes of crude oil is expected to be produced during the Seventh Plan. Out of the total production during the Seventh Plan, 102.31 million tonnes would be from offshore whereas the balance 56.83 million tonnes would be from inland areas.

Gas Production

Natural gas emerged as an important source of energy and feedstock during the Sixth Plan. Gas production which was 7.2 billion cu. metres in 1984–85 is likely to increase 14.9 billion cu. metres by 1989–90. This increase in gas production would be mainly on account of commercial production of free gas from South Bassein field in Bombay basin. In the case of gas the five main aspects are (i) availability, (ii) transportation, surface handling facilities and treatment, etc., (iii) fractionation, (iv) downstream utilisation, and (v) conservation.

So far as availability is concerned, ONGC is producing both free and associated gas from Cambay basin, whereas only associated gas is being produced from Upper Assam basin. The increase in gas availability from these basins was mainly due to step-up in crude oil production.

The biggest increase in gas availability during the Seventh Plan would be from South Bassein gas field starting from 1986–87. It has been envisaged in the Plan that South Bassein would attain a peak production rate of 20 million cu. metres per day in 1987–88. Further, the free gas production from West coast offshore may increase to 21 million cu. metres per day in 1989–90 with the development of satellite gas field in West coast. In case of OIL, the production of associated gas has already reached the peak level and a gradual decline would set in during the Seventh Plan.[52]

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[51] *Seventh Five-Year Plan, op. cit.*, p. 29.
[52] *Ibid.*, p. 296.

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A long-term policy of utilisation of gas is to be evolved with particular reference to substituting gas for middle distillates. The importance of this exercise becomes relevant if the forecast of the experts that by the end of the year 2000 hydrocarbons production of 100 million tonnes may be in equal proportions of gas and oil is realised.

Consumption of Petroleum Products

During the Sixth Plan, the consumption of petroleum products grew at the rate of 5.2 per cent. In the Seventh Plan, it is expected to grow at the rate of 7 per cent reaching about 53.9 million tonnes in 1989–90. The consumption of middle distillates grew at the rate of 6.5 per cent in the Sixth Plan, and is likely to grow at the same rate of 6.5 per cent in the Seventh Plan, being about 56.7 per cent of the total consumption in 1989–90. At these growth rates, the consumption of petroleum products may reach about 90 million tonnes by 2000 with the middle distillates constituting about 64 per cent.

Considering the fact that India's per capita use of petroleum products is very low, with the increase in population and economic development the consumption of petroleum products and middle distillates in particular is likely to go up. But, on the other hand, with more efficient use of these products the consumption can be kept under control. It is possible to achieve savings of 10 per cent to 25 per cent in transport buses, cars and trucks, kerosene lanterns and stoves. They provide scope for increasing efficiency in the range of 15 per cent to 40 per cent. With regular and stable supply of electricity, it should be possible to check the increase in diesel operated irrigation pumpsets and captive power generation units in the long run.

Refining

There are at present 12 refineries, all in Public Sector. The installed refining capacity in the country during 1983–84 was 37.80 MT (Table 4.14). The total refining capacity as on 1-4-1988 stood at 46.70 million tonnes as against 31.80 million tonnes in 1980–81.

Table 4.14
Capacity Utilisation of Refineries (1981–87)

(in million tonnes)

Year	*Capacity*	*Capacity Utilisation %*
1981–82	31.80	95
1982–83	36.66	90
1983–84	37.80	93
1984–85	45.55	94
1985–86	45.55	94
1986–87	46.70	93

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The refining capacity existing at the end of the Sixth Plan was 45.55 million tonnes whereas the demand for petroleum products by the end of the Seventh Plan will be 52.67 million tonnes. To fill the gap between demand and supply a number of de-bottlenecking and expansion projects have been proposed during Seventh Plan. The work on setting up two new refineries of 6 million tonnes capacity each at Karnal in Haryana and Mangalore in Karnataka has already been initiated.

Crude Throughput (1980–88)

The crude throughput rose from the level of 25.80 million tonnes in 1980–81 to 34.20 million tonnes in 1987-88. The revised target of crude throughput envisaged for 1984–85 was 36.81 million tonnes against which actual crude throughput was 35.36 million tonnes. Consistent with the increased refining capacity, there has been substantial increase in refined crude throughput which stood at 47.74 million tonnes in 1987–88 (see Table 4.15).

Table 4.15
Crude Throughput (1980–81)[11]

Year	*Million Tonnes*	*% Change Over the Previous Year*
1980–81	25.84	−5.9
1981–82	30.14	16.6
1982–83	33.16	10.0
1983–84	34.26	3.3
1984–85	35.56	3.8
1985–86	42.91	
1986–87	45.70	
1987–1988 (Prov.)	47.74	

Seventh Plan Outlay

The Seventh Plan outlay for oil and natural gas is Rs. 12,627.67 crore as compared to the Sixth Plan expenditure of Rs. 8,511 crore. This amount includes Rs. 10,652.67 crore for exploration and production and Rs. 1,975.00 crore for refining and marketing. Depending upon the progress made, additional outlays may also have to be provided during the Plan period.

NON-CONVENTIONAL SOURCES OF ENERGY

It is clear that for a few years to come, energy would be mainly coming from conventional sources like coal, hydro, fuel wood, etc. However, alternate

[11] Information received from the Ministry of Petroleum and Natural Gas.

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energy sources should find wide application in future once the technologies suitable for their exploitation are fully developed, and the costs of these technologies are adequately reduced. Indeed, in the long run such widespread application of new and renewable sources of energy will be necessary since the reserves of conventional fuels such as oil and coal are limited in the world and the pressure on their availability and prices will steadily mount as demands increase. The world as a whole has generally recognised that there would have to be an energy transition away from its present excessive dependence on hydrocarbons to a more diversified mix which uses in increasing measure new and renewable sources of energy. Such energy sources are renewable by nature and have also the advantage of generally producing energy in a non-polluting form. Thus, the twin objectives of energy production and environmental preservation can both be largely met by recourse to these renewable forms of energy.

The United Nations organised a special conference on New and Renewable Sources of Energy in Nairobi, Kenya, on August 10, 1981. This conference recommended a 'plan of action' for the development of these sources of energy. Delivering the key-note address at the opening ceremony of the conference, late Prime Minister, Shrimati Indira Gandhi called upon the world community to make energy a focal point of contemporary international cooperation and collaboration based on a more equitable sharing of conventional energy and a joint development of new and renewable sources. She attributed energy crisis to the reckless exploitation of conventional energy sources by the technologically advanced industrialised countries and affirmed that they could not evade the responsibility of helping the developing world in its confrontation with this crippling crisis. She said:[34]

> One of the important causes of the present disturbed and insecure state of the world system, is the scramble for the pre-emption of fossil fuel deposits and the accumulation of increasingly sophisticated and energy-intensive weapon systems which are a concomitant of the arms race and policies of confrontation. Obviously these are aimed at maintaining the status of the affluent and powerful by supporting the existing infrastructure and disparities. Hence, the urgent need for an energy revolution. We must move from the present international economy primarily dependent on hydrocarbons, to one increasing based on new and renewable sources of energy. Such a transition is likely to profoundly change international relationships.

Position in India

The sharp increases in oil prices, uncertainties in supplies, difficulties in producing and transporting increasing amounts of fossil fuels, environmental degradation caused by conventional fuels are among the factors which have led India to focus attention on renewable energy sources. The main sources of

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[34] Government of India, Publications Division: *Selected Speeches and Writings of Indira Gandhi*, Vol. IV, January 1980–December 1981, p. 266.

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renewable energy which are of importance to the country, are hydropower, solar energy, bio-energy, wind energy, ocean energy and animal energy. Of these, biomass as a source of fuel and animal energy for mechanical work and transportation have been known and used in India since time immemorial. Solar energy use for applications such as drying has long been part of Indian way of life. The utilisation of hydropower in a significant manner began only in this century though its use for motive power has been known in the hills in ancient times. The Department of Science and Technology of the Government of India initiated an integrated programme for research and development in the area of energy sources in 1974–75. The programme covered all aspects relating to the development and utilisation of solar energy, improvements in biogas and bioconversion technology, decentralised systems, energy storage, battery powered vehicles, etc.

The Government is implementing a programme of R&D, Demonstration, Industrial Production and Utilisation relating to New and Renewable Sources of Energy. Various renewable energy devices and systems such as solar cookers, solar water heaters, solar timber kilns, photovoltaic systems and biogas plants have been developed in the country and are being popularised through various measures. Seven windfarms of the capacity exceeding 6.35 MW have already been commissioned resulting in the production of 15 million units of electricity for the respective grids. Studies have also indicated that a substantial amount of electrical generating capacity could be supported through biomass resources in energy plantations.

India has taken lead in promoting and developing New and Renewable Sources of Energy (NRSE). It set up a Commission for Additional Sources of Energy (CASE) on March 12, 1981 and the Department of Non-conventional Sources of Energy on September 6, 1982. While the overall responsibility for formulating the policies and programmes rests with the CASE, the Department of Non-conventional Energy Sources makes arrangements for their implementation.

Bio-Energy

Biogas

Bio-energy is taken to mean energy obtained from biological systems either by direct use of biomass or by converting it into gaseous and liquid fuel and includes biogas. Biogas is mainly produced from cowdung, nightsoil, poultry droppings, pig manure, etc. The gas produced from biogas plants can be utilised as a fuel for cooling, lighting, running diesel engines and for generation of electricity. One well-known advantage of this technology is that the cowdung and other wastes are converted into enriched manure after generation of gas. Use of biogas also helps in improving the sanitary conditions and checking environmental pollution, besides improving the health conditions of rural women and reducing drudgery. This technology helps in arresting the denudation of forests by providing substitute to fuel wood.

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The National Project for Biogas Development (NPBD) was sanctioned in November, 1981 as a Central sector scheme with an outlay of Rs. 50 crore envisaging a target of setting up of 4 lakh biogas units during the Sixth Plan period. For the Seventh Five-Year Plan, a target of 5.5 lakh biogas plants at an outlay of Rs. 177 crore is envisaged. Against this, by the end of November 1988, 10.70 lakh biogas plants were installed which goes to show the increased popularity and relevance of this programme for a developing country like India. Central grants are available to the States for giving subsidy to those who want to set up biogas plants. Subsidy is available to all rural citizens. The Khadi and Village Industries Commission is another important implementing agency for NPBD. With the view to creating a cadre of trained manpower at different levels, training programmes are also in operation. Regional Biogas Centres at Coimbatore, Udaipur, Pusa-Samastipur, Kharagpur, Palampur, Indore, Ghazipur and Hyderabad organise different types of training programmes for building up technical capability for the biogas programme, location of specific operational research/field work, preparation of extension and publicity materials and organising exhibitions and seminars. There is a programme for setting up large size community and institutional biogas plants. These will be based on effluents and sewage. The community biogas plants (CPB) are defined as plants with a minimum capacity of 45 cu.m/day and meeting the fuel needs of at least 25 families. For institutional biogas plants (IBP), no size limitation need be fixed as the capacity of the plant would depend on the availability of wastes at the institution.

Cooking Energy

The greatest part of the energy consumed in our villages is for cooking food. The traditional appliance used for cooking is the chulha (wood stove) which burns firewood, agricultural waste or cowdung in an extremely inefficient manner. It is estimated that even 1 per cent increase in the efficiency of traditional chulhas will result in saving of 30 lakh tonnes of wood per year. Considering, therefore, the improved chulhas as the best and cheapest measure to mitigate the health hazards and the drudgery of rural women and the most effective fuelwood conservation method, the Department launched in December 1983 a National Project on Demonstration of Improved Chulhas.

By the end of November 1988, more than 49.50 lakh Improved Chulhas had been installed. The initial target of installing 50 lakh Improved Chulhas during the Seventh Five-Year Plan period, therefore, is likely to be exceeded. The net saving in fuel wood by installation of these 49.50 lakh Improved Chulhas would be of the order of almost 35 lakh tonnes of fuelwood valued at over Rs. 140 crore per year. This has resulted in making homes in over 12,000 villages smokeless which will, in the long-term, lead to substantial improvement in the health of the concerned women-folk.

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Solar Energy

India has a significant level of insolation over wide areas due to its favourable geographical position. The daily solar energy incidence at many places ranges between 5 to 7 kWh/sq. metres. The number of days with usual sunshine per year is between 250–300 in most parts of the country.

The first effort to harness solar energy in India began in the early fifties. Planned effort was started with the formation of the Panel on Solar Energy by the National Committee on Science and Technology in 1973. It studied the entire problem and came up with several programmes. Since then, R&D efforts have been initiated in a number of organisations and financial assistance provided on rapidly increasing basis. Priority is being accorded to its application in agriculture and industrial sector with a view to reducing the pressure on fossil fuel. Increasing emphasis is being laid on systems designed for community use.

Solar Thermal Applications

Among the solar thermal systems, water heating units have now reached the stage of commercial production. A large number of applications in the area of solar thermal conversion, particularly those which require low grade thermal energy have already been found useful both for urban as well as rural areas. These include cooking, water heating, water desalination, space heating, crop drying, refrigeration, etc. Efforts are being made in a number of research and development organisations in the country to develop economically viable solar collectors for high temperature application. A country-wide demonstration programme has been taken up by the Government to identify technical, social, economical devices. Efforts are also under way to disseminate the available technology in this field to reduce the pressure on fossil fuel in these sectors. Significant saving in the conventional fuels have been reported through existing field trials/demonstration projects. The field trial/demonstration programme has the following objectives:

(a) Evaluating performance of various solar thermal devices and systems under actual field conditions for feedback on further improvements in their performance, reliability and life;
(b) Demonstrating operational characteristics to the users; and
(c) Creating awareness among the people about the potential of these systems.

Under this programme, different systems like water heaters, dryers, wood seasoning systems, cold storage, power generating systems and pumps are being installed. The demonstration of various solar thermal systems has shown that extensive use of these devices in industries, hospitals, hotels, domestic and institutional sectors has tremendous potential for conserving conventional fuels and their large scale use will have a favourable effect on the national economy. Over 1800 solar water heating systems, 33 solar timber kilns, 7133 solar

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desalination systems, 33 solar air heater/solar crop dryer systems and 2554 domestic solar water heating systems, systems installed over 93,000 sq. metres are calculated to be generating/saving over 62.7 million kWh of energy per year. Several models of solar cookers have been developed in the country and over 1 lakh solar cookers have already been sold by the end of November 1988.

Solar Photovoltaic Applications

Photovoltaic research and development in India includes material development, fabrication techniques, system development, etc. In the area of solar photovoltaics, the technology for the manufacture of solar cells and modules has been developed in the country. A five year programme for pilot scale production of photovoltaic devices and systems for various applications is being implemented at the Central Electronics Limited with the sponsorship of the Department of Non-conventional Energy Sources. A total of 852 solar photovoltaic pumps have been installed in different parts of the country for purposes of demonstration and evaluation. In many cases, the pumps are providing water for drinking purposes in rural areas and for micro irrigation. By November 1988, a total of 1000 domestic solar lighting systems, 400 solar community and TV lighting systems, 631 solar battery charging units and a few experimental solar photovoltaic plants of 1 to 5 kW range had already been installed in many villages for meeting the requirement of the community. Also some 5000 villages had been provided with solar photovoltaic street lighting systems. An intensive programme of research and development in this area is also being supported by the Department.

Solar Industry

A small but significant industrial base has emerged in the country during the last few years for the development and manufacture of solar energy products. Radiation measuring instruments and sunshine recorders are being made by the National Instruments Limited and the India Meteorological Department. "Suryamapi", a solar intensity meter as well as photovoltaic cells and modules are being manufactured by the Central Electronics Limited. Several manufacturing establishments in the private sector also offer water heating and other systems. Some items of equipment, subsystems and materials required by solar industry such as vacuum coating units, furnaces, heat exchangers, pumps, measuring instruments, insulation materials, chemicals, etc. are also being manufactured in India.

Wind Energy

A handbook on *Wind Energy Data for India*, published by the Department of Non-conventional Energy Sources, has computed the energy pattern factor, the mean energy content of the wind, and the distribution of wind power density over different wind speed intervals. Another interim report incorporating 12 months data from 22 wind monitoring stations in Gujarat, Tamil Nadu, Orissa

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and Maharashtra has recently been published. The report mentions 16 locations which have annual mean wind speeds exceeding 15 km per hour.

Wind energy can be used for water pumping and also for power generation. Continuous improvements are being carried out in respect of small wind pumps. A programme of pilot project on wind monitoring has been initiated with a view to obtaining wind data suitable for deployment of wind electric generators for power generation.

Several types of water pumping wind mills have been developed in the country. This includes one which can lift water from depth upto 50 m. The project for techno-socio-economic evaluation and impact assessment of wind mills has made progress. 61 wind monitoring stations have so far been set up. The wind resources of the country mapped so far indicate a potential in excess of 20,000 MW in power generation alone.

The Wind Energy Centre at Allahabad is mainly concentrating on carrying out modifications in the 12-PU-500 wind mill and the development of small multi-bladed horizontal axis aero generators of capacities upto 3 KW. This Centre is also engaged in the development of a new wind pump model and the adaptation of some imported deep-well wind pumps. Effort is being made for setting up a centre for Wind Energy Systems at National Aeronautical Laboratory, Bangalore. It would be mainly concerned with work relating to medium and large electric generators and for provision of other sophisticated and high technology inputs for the National Wind Energy Programme.

Demonstration and Field Trials

In order to facilitate the diffusion of wind pumping technology, a programme of demonstration and field trial is being implemented to create public awareness and obtain feedback on technical, organisational and infrastructural aspects. Over 2300 pumps have so far been installed.

In view of the fairly significant potential for wind electricity generation in the country, and considering the need for just a few square kilometres towards setting up clusters of wind mills, the Commission for Additional Sources of Energy had approved a project for the establishment of wind farms of the aggregate capacity of 2 MW initially. By now, wind farms of a total capacity of 6.35 MW have already been set up. Projects with a capacity of 26 MW more under this sector are under execution. The projects are being implemented through the State Governments/State Electricity Boards who will undertake site preparation, foundation and civil works. It was also proposed to study the feasibility of deploying small and medium size wind electric generators for rural electrification with assistance from diesel back-up. Such a mode is cheaper as compared to a completely diesel system.

Geothermal Energy

The potential for geothermal energy is somewhat limited in India, with useful energy sites occurring mostly in Himalayan regions. Investigations have been

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carried out at various places including Puga Valley of Ladakh and Manikaran region of Himachal Pradesh.

Lok Sabha was informed on August 20, 1985 that hot springs had been found in Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh, Madhya Pradesh, West Bengal, Bihar, Maharashtra, Gujarat, Andhra Pradesh, Rajasthan and Haryana. Investigations were in progress to assess the geothermal potential in promising areas of Madhya Pradesh. Geological, Geochemical and Geophysical studies have been carried out and exploratory drilling was in progress at Tattapani in Sarguja District in Madhya Pradesh. The feasibility of utilising hot water was being studied.

Research and Development activities relating to the cold storage unit and 5 kW power plant, both based on geothermal energy, at Manikaran have continued. The pilot Cold Storage Plant at Manikaran, using geothermal energy started trial testing and had shown successful results.

Ocean Energy

The tidal power potential has been estimated at approximately 18.4 TWh/annum along the coast of Gujarat. A detailed prefeasibility investigation in the Gulf of Kutch has been undertaken. A High Power Steering Committee has been set up under the Chairmanship of Secretary, Department of Non-conventional Energy Sources, for the development of Ocean Energy utilisation systems. The OTEC Project Cell, established earlier at IIT Madras, completed the feasibility study of setting up a 1 MW OTEC plant in Lakshadweep Islands. The project cell identified two possible sites, one at the island of Kavaratti and the other at Minicoy.

On August 21, 1985 Lok Sabha was informed that there were three schemes under consideration for the generation of power from the sea based on tidal energy, ocean thermal energy and wave energy. Techno-economic feasibility reports were under preparation for tidal power and for ocean thermal energy conversion. Research and Development work had already started on the utilisation of wave energy for power generation.

Energy from Urban Waste

As one of the major thrust areas to be developed in the utilisation of urban waste, both solid and liquid, for generating energy and also improving the urban environment in the process, an incineration plant with a capacity of 300 tonnes of solid municipal waste per day has been installed in Delhi with the assistance of the Government of Denmark. This plant will incinerate solid urban refuse and will convert the heat into 3 MW electricity. A pyrolysis plant, using solid urban refuse, is proposed to be set up at Bombay so as to extract liquid fuel from the solid refuse through the process of pyrolysis.

A project has been undertaken at Timarpur in Delhi where power will be generated from solid waste. Several projects for generation of power from bagasse in sugar mills in the country are under execution. Successful implementation of

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such projects could lead to adoption of the technology by other sugar factories and could result in approximately 2,000 MW surplus power generation in the country from biogas during the crushing season.

Growing concern for environmental protection and the rapidly increasing wastes resulting from population growth lent urgency to the need for recycling of organic wastes. The Department of Non-conventional Energy Sources, has, therefore, adopted an integrated approach to the management of wastes including energy recovery, environmental preservation and reuse of digested sludge, bio-manures and treated effluents. For this purpose close liaison is being maintained with other agencies such as Ministries of Environment, Works and Housing, and Agriculture and State Governments and local municipalities for effective implementation of energy recovery systems.

New and Renewable Sources of Energy in Seventh Plan

Keeping in view the objectives and the basic approach given above, the new energy sources programme in the Seventh Plan are focussing on technology development, demonstration and extension of such technologies to the poor, which have become technically and economically viable and are socially relevant. An outlay of Rs. 560 crore has been provided for the Seventh Plan Programme. The main thrust areas for the Seventh Plan include:

Bio-energy

Biogas A large component of the bio-energy programme is the development and utilisation of biogas (including community biogas and R&D). This is an ongoing programme which has made an impact in meeting the energy needs for cooking, lighting and fertilisers in rural areas. Under the National Project on Biogas Development (family size plants), a target of 5.5 lakh plants for the Seventh Plan has been fixed. R&D efforts would focus on developing low cost designs and diversification of feedstocks. The emphasis in the CBP/IBP programmes would be on promoting community biogas plants for meeting energy needs of the weaker sections of the community. For this purpose, new cooperative arrangements would be developed and tested for their successful installation and operation.

Bio-mass The other major component of bio-energy which is being developed on a significant scale during the Seventh Plan period is the biomass programme, which includes development of selected species for energy plantations and power generation, conversion of wood and utilisation of agricultural residues. A germ plasm bank is also being established. New schemes would include large cultivation of fuelwood, biomass based woodgasifier engines for irrigation and drinking water purposes, solid fuel through conversion of agricultural wastes into pellets and briquettes, and production of liquid for transportation from biomass such as ethanol and methanol. Five biomass centres have already been set up in different parts of the country for providing R&D backup for these demonstration and operational programmes.

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Solar Energy

R&D, field demonstrations and extension programmes in solar photovoltaics and solar thermal energy are being intensified. Solar thermal programmes consist of extension programmes for cookers, water heating, timber kilns, solar distillation, dryers, steam generators, other manpower evaluation, monitoring, etc. and field demonstration and testing for refrigeration, cold storage, air-conditioning, power generating decentralised systems, tower ponds etc.

Solar photovoltaic programme consists of R&D demonstration and extension activities. Extension programmes include solar street lighting, solar pumps for irrigation and drinking water. Field demonstration include electrification in remote villages, solar water pumping systems, and power generation system of 10 to 100 kW capacity. R&D would focus on development of amorphous silicon cells and pilot plants for amorphous silicon and ribbon silicon solar cells, as well as development of other system components, including concentrator cells, tracking system, multilayer cells, and other thin film devices. A national testing facility would also be set up for testing and calibrating solar photovoltaic components.

Urban Waste

The Urban Waste Programme covers R&D, incineration, sewage and sludge utilisation, landfill, and distillery effluent and pyrolysis projects. Based on the experience of the Sixth Plan project in Delhi, energy recovery and sewage treatment plants are proposed to be taken through the funds available with Central Ganga Authority.

Wind Energy

In the Wind Energy Programme, focus would be on technology development of wind generation systems, and for bringing about major improvements and cost reduction in the utilisation of wind pumps for irrigation and drinking water. Wind Energy programmes also include strengthening of wind data base and setting up of pilot projects on wind monitoring, R&D of medium and large wind electric generators and demonstration and field testing of wind pumps, small battery chargers as well as setting up of wind farms. Training programmes are being organised for creating skilled personnel.

Improved Chulhas

The National Programme of Chulhas and Woodstoves which has been enthusiastically accepted by the rural population is being expanded during the Seventh Plan with reduced subsidies. R&D efforts will be intensified to improve efficiency of stoves and chulhas and the training programmes will be made more broadbased.

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Micro-hydel Programme

Micro-hydel programme covers R&D demonstration and setting up of pilot projects to become a major R&D programme for tapping the vast untapped micro-hydel potential. Small hydel projects with a capacity of 50 kW–100 kW are being specially promoted during the Seventh Plan for tapping hydro energy in canal droppings and small streams. Two projects of 150 kW and 200 kW have been installed in Himachal Pradesh and one of 300 kW capacity in Kakroi in Haryana. The aim is basically to extract micro hydel energy from extremely low heads.

Draught Animal Power Programme

The Draught Animal Power Programme is being organised and coordinated through setting up of a Centre for DAP which would be responsible for developing and coordinating programmes for improvement of DAP utilisation in the country. New designs of improved carts and water-lifting devices are being developed and promoted. Also, programmes for improving utilisation of human energy for transportation through cycle rickshaws and hand-carts, as well as by landless labourers and artisans, are being developed and promoted.

Other Renewable Energy Sources and R&D

Decentralised production of power through utilisation of solar, wind, biogas and biomass is being taken up on a pilot demonstration basis to get the necessary feed-back on technoeconomic viability and operating performance. Based on these demonstration projects, appropriate organisations in the private and public sectors, including State Electricity Boards, would be involved in further development and commercialisation.

Work on chemical energy, battery-powered vehicles, geothermal energy, and ocean thermal energy conservation, etc., is being continued and expanded as part of an intensive and wide-ranging programme for the long-term energy options. In geothermal energy, studies relating to geothermal potential and development of low and medium temperature geothermal based applications are being continued. In chemical sources of energy, emphasis is being placed on the development of fuel cell technology and improved energy storage systems.

Constraints in the Utilisation of New and Renewable Sources of Energy

The contribution of renewable energies depends on a variety of factors. Chief among them are the pattern of development, the short- and long-term objectives in the utilisation of renewable energies, the geography and size of the country and the availability of various resources of energies, conventional and renewable. Any policy for renewable energy development will have to take into account several constraints. Renewable sources such as sun, wind, agricultural and

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animal wastes have been used in India for various purposes since time immemorial. It is in the context of utilising renewable sources today on a large scale and to the application of modern science and technology that many of the constraints arise some of these aspects are discussed in the succeeding sections.

Economic and Financial Constraints

One of the most important constraints in the wider utilisation of renewable energy/systems is the high initial (capital) cost. The cost of a solar or a wind device today is considerably higher than that of the product based on conventional fuels. In a country like India, where capital is relatively scarce and where individual earnings are not high, this indeed is a deterrent to most potential users of renewable energy systems. The low level of production on account of this in turn inhibits any cost reduction that may be achieved through a large volume of production. Once again, it is developing countries which are more seriously affected by this vicious circle. Relatively simple units such as biogas plants, are also beyond the reach of a large percentage of farmers.

The problem of high cost of renewable energy systems can only be overcome through technology improvement, material and manufacturing development, and a package of fiscal and other promotional measures. Cheaper windmills and accessories will become available when material and component costs are brought down. Likewise, developments in technology are necessary to bring down the cost of batteries for energy storage on electric vehicle applications, mini and micro hydel sets and other devices and systems for utilisation of renewable energies. There is of course the fear that countries will not be able to benefit from advances in technology as long as there are difficulties in having access to these advances.

The conventional energy structure is artificially priced in many countries including India. Furthermore, the capital investment in conventional energy supply is borne by the energy supplier (in India, largely, the Public Sector) while for renewable energy utilisation, the user has to incur the initial investment also. It is therefore, essential that a system of subsidies and incentives is introduced atleast in initial stages so that renewable energy systems become economically competitive.

Any economic evaluation of renewable energy systems at the moment presents numerous methodological problems on account of special characteristics of these systems, namely, variability in supply, location and site specificity of resources, higher initial cost but zero or low cost of fuels and operation and maintenance, lower gestation period compared to conventional energy systems, social and environmental benefits, etc. Yet numerous studies made by many individuals and organisations in this regard now available have indicated that several renewable energy systems come out quite favourably when compared to conventional energy systems even at today's costs. For example, electricity generation from windfarms is found to be economical for units upto 55 kW sizes when 25 per cent premium on foreign exchange is taken. For higher unit sizes and higher installed capacity, say from 2 to 10 MW, the economy of

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windfarm is much more favourable as it works out to Rs. 1.68 kWh in years 1–20 against Rs. 1.98 kWh for coal thermal for the same period. Similarly the cost of electricity generation for a solar thermal power plant (30 MW) in Punjab comes to Rs. 1.60 kWh as compared to Rs. 2.20 kWh from a diesel plant of same capacity. Moreover, the solar plant can be set up within 2 years against 5–6 years that is required for a conventional plant. The economic value of production in this time difference (3–4 years) would more than offset the higher initial cost of the solar plant. In case of mini and micro hydel (average capacity 300 kW), the studies have worked out the cost of generation at Rs. 0.47 kWh which is extremely favourable.

In spite of the current capital cost of PV arrays, solar PV lighting systems are found to be economical from the viewpoint of society for low loads of 1 to 3 kW for distances around 4 to 12 km from the nearest grid. For villages 40 km away and with a load of 10 kW, PV systems again are quite economical. Of course, the economics of PV systems will improve further with expansion in volume of production and improvements in the technology of cell manufacture including amorphous silicon development.

In the field of biogas, if the total value of biogas to the society is taken in terms of shadow price of wood, kerosene and soft coke, all of which are at present subsidised and the indirect benefits in such areas as improved health of women, general sanitation of the surrounding homestead, increase in the life of utensils, time saved in cooking, etc., then the subsidy programme of the DNES for the construction of family-size biogas plants can be more than amply justified in all corners of India.

To sum up, the numerous studies already undertaken clearly bring out the fact that many of the renewable systems are already economical from the viewpoint of the society. However, because of the existing practice of subsidising conventional electricity, diesel, oil and kerosene, these systems are not considered financially viable for the short-term investment point of view of the consumers/farmers/entrepreneurs. This dichotomy between social profitability and private financial viability has been one of the main reasons for a slower diffusion of renewable energy technologies than they otherwise merit. It is, therefore, necessary that if for socio-political-historical reasons, subsidies on conventional fuels or electricity cannot be cut down, an equivalent subsidy or investment support be provided to renewable energy systems when they are installed in individual premises. Simultaneously, generous fund allocations need to be made for such capital subsidies/investment/R&D projects that would result in the installing of more and more such renewable systems.

Infrastructure

As the use of conventional fuels increased in the last several decades, a vast infrastructure for manufacture, distribution, supply, maintenance, servicing, etc. has been built up in India. There is no such infrastructure to match in the renewable energy sector. Any widespread utilisation of renewable energies will require a suitable infrastructure for the manufacture, installation and servicing

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of renewable energy systems. This is even more important when decentralised autonomous installations are to be propagated.

The inadequacy of institutional framework has been felt even in the case of biogas where the technology has been commercialised for a long time in India and the plants are basically simple. A socio-economic evaluation of the biogas systems in India has brought out many issues related to technical information, promotional agencies, manpower, manufacture, maintenance, etc. The problem of infrastructure development is obviously related to economic considerations, socio-cultural parameters and general awareness. Special efforts will be needed for the development of infrastructure for the manufacture, installation and maintenance of solar and wind based systems. Solar photovoltaic pumps are not expected to pose serious maintenance problems. If community biogas plants and integrated energy systems are to be installed in villages, trained workmen will be required to operate and maintain them.

Socio-Cultural Factors

The problem of creating awareness of renewable energy systems is common to many countries of the world. Even in India where there have been certain traditional ways in which renewable energies have been used awareness has to be promoted regarding newer techniques which offer more efficient ways of utilising the renewable sources. A 'solar ethic' has to be cultivated wherever there is potential for the utilisation of solar energy. Even in industry, it is noticed that a large section is not aware of the need for, or the ways of, conserving energy and utilising renewable sources.

Certain habits and cultural practices may have to change if renewable energy devices are to be used on a wide scale. Some examples of these are: (a) solar cookers require certain cooking schedules and methodology which may be different from existing practices; (b) the sharing of inputs for the outputs from community installations (such as biogas plants) requires a certain type of organisation of social structure; (c) the wind patterns in many areas are such as to require changes in the agricultural cropping patterns and schedules if the wind energy is to be used to provide water for irrigation (in some areas this may actually result in extra crops). The examples mentioned above illustrate the problems that may arise out of mismatch of traditional practices with availability of renewable sources of energy.

The spread of modern renewable energy systems may also be limited by the fact that a large percentage of population is illiterate and people themselves are divided into a large number of languages and dialects; these two factors affect communication which is essential for any awareness programme. Any technical literature will have to be prepared in a style that is easy to understand and translated into various languages. Enough experience in this regard is, however, available through other national programmes relating to agriculture, health, etc.

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Technology

In many areas of renewable energy utilisation, technologies are required to simultaneously meet the criteria of low cost, efficiency and reliability which are not yet available. This includes the question of suitable materials for renewable energy systems and components. The very nature of renewable energy systems/ sources also poses technological changes. Generally, renewable sources are available in diffuse forms and fluctuate with time. This calls for adaptation of technologies and for development of suitable energy storage systems. Various components and sub systems have to be designed after taking into account these factors.

There is also the important question pertaining to choice of technology for the development of renewable energies. This aspect is linked to the objectives of economic development as well as existing socio-economic conditions. The choice of technology also depends on resource endowment, climatological parameters such as insolation levels and wind speed, basic capability in science and technology, material and manpower resources, etc.

Developing countries which are more seriously affected by the energy crisis, unfortunately also lag behind in technology development. It is, therefore, necessary that developing countries should have easier access to technology in this area. As long as suitable international arrangements to ensure this are not worked out, this will be a serious constraint in the wider utilisation of renewable energies.

Other Constraints

In addition to constraints mentioned in the preceding sections, there are some which are specific to certain forms of renewable energy. For instance, the development of hydropower is constrained not only by the fact that it is capital intensive and requires long gestation times, but also on account of the fact that almost 40 per cent of the potential lies in the Himalayan ranges. In these areas, the access is difficult and the geology is complex, creating major technical problems in design and construction. Further, environmental impact considerations may hold up some schemes.

As the development of new and renewable sources will touch every facet of the economy and life in general, there are bound to be problems relating to administration, materials, scientific and technical capability, etc. These are, however, not expected to be serious constraints in India. The country has a large pool of qualified scientific and technical manpower; there is significant infrastructure of research and development institutions and industry, even though certain associated technologies to support a renewable energy industry are not yet available within the country. Administrative and institutional inadequacies are not difficult to recognise. Plans are underway to overcome these shortcomings. The raw materials required to sustain a large renewable industry are available within the country, or are expected to be available in the next few years. However, certain specialised chemicals and raw materials including some

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required for batteries for electric vehicle applications may continue to be imported for some time to come.[55]

ENERGY POLICY AND STRATEGY

In India the need for and the importance of a coherent national perspective and policy for development of various forms of energy has been recognised all along. The energy situation and supplies have been under constant review and critical analysis and the policy prescriptions and strategies considered appropriate at different point of time were taken into account in formulating energy programme in the successive Plans.

Energy Survey of India Committee (ESC)

The Energy Survey of the India Committee set up in 1961 carried out a comprehensive energy survey of the country. The Report of the Committee which represented the first attempt to take a comprehensive view of the country's energy problems and to make projections of energy demand and supply for the 15 year period from 1965 to 1981, stressed that it would be "desirable to keep constantly under review the trends of energy consumption and to reformulate policies as circumstances change."[56] This study enabled formulation of a pragmatic strategy for energy development during the sixties.

Fuel Policy Committee (FPC)

The energy situation was again analysed in depth during the early seventies by the Fuel Policy Committee, 1974 which reiterated the recommendations of the previous Committee in almost identical terms. Based on the Report submitted by the Fuel Policy Committee and taking into account the developments in the world energy scene since 1973, a comprehensive energy policy was formulated in 1976. This policy underlined the importance of coal as the principal source of energy and the need for reducing reliance on imported oil and increasing indigenous oil production and exploration. Attention was focussed on the need for substitution of oil, wherever technically and economically feasible. Development of new and renewable source of energy was also given priority.[57]

Working Group on Energy Policy (WGEP)

The Government of India set up a Working Group on Energy Policy in December, 1977 with the following terms of reference:

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[55] Information received from the Department of Non-conventional Energy Sources.

[56] Government of India, Advisory Board of Energy, *Towards a Perspective on Energy Demand and Supply in India, 2004/05*, 1985, Preface.

[57] *India—The Energy Scene*: Training Abstract Nos. 5-83, prepared by Dept. of Personnel and Administrative Reforms, Government of India in 1983.

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— to estimate the prospective energy demand in the different sectors of the economy and regions of the country by 1982–83 and a decade thereafter;
— to survey the present and prospective supplies of energy;
— to recommed measures for optimum use of available energy resources; and
— to outline the national energy policy for the next five years, fifteen years and the longer term conservation policy.

The studies undertaken by the Working Group brought out the need for a reorientation of our approach to the issues in the energy sector. The Working Group found that, so far, there had been an overwhelming concern with the problem of supplying energy to a level specified by demand from various sectors of the economy. It said:

> . . . such an approach may not be desirable or even feasible in the long term. The energy policy issues have to be examined with reference to the management of demand as much as to meet a given demand. The energy consumption in the different sectors of the economy also indicate that there is considerable scope for conservation without restraining our economic growth and that, in fact, the economic growth rate might well be higher if the outlays on the energy sector were more prudently managed.[58]

One of the inescapable conclusions of the study was that the resource availability of conventional fuels was likely to be a constraint for long-term economic growth and that alternative sources of energy would need to be explored. A coordinated R&D programme was called for with clear cut priorities.

The Report of the Committee on Power (1980) set up by Government of India, stressed the point that since power projects have long gestation periods—of sometimes even more than 10 years—it was necessary to formulate plans for power development on the basis of perspective of 15 to 20 years and to build Five-Year Plans into such perspectives.

Advisory Board on Energy

It is in this context that the Advisory Board on Energy was set up in 1984 to make energy demand and supply projections for the next twenty years. It submitted its Report in July 1985. The Board has called for formulating strategies to reduce dependence on oil by ensuring improved availability of coal and power. It has indicated that the current level of energy demand may multiply three or four times in the next 20 years.

The study has suggested several steps to improve availability of energy in the short run. These include increased transportation of coal by rail, supply of coal of right quality and quantity to power stations and other major consumers, improvement in the plant load factor of thermal power stations, reduction in transmission and distribution losses, conservation and efficient use of energy,

[58] Report of the Working Group on Energy Policy, *op. cit.*, p. 120.

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particularly oil, in almost all consumption sectors where such savings potential has already been identified, and substitution of oil by soft coke, briquettes biogas and the like.

To reduce dependence on oil, the study has suggested placing greater reliance on hydel and coal resources. Replacement of kerosene by electricity for lighting, improved efficiency in the use of oil in the industrial, agricultural, transport and household sectors and increased use of rail transportation on a priority basis will be required to save foreign exchange by minimising import of oil. The study has pointed out that the large scale depredation of forests, which has reduced the effective forest cover to 11 per cent of land area, has to stop to avoid serious ecological and domestic energy problems. Increased production of firewood as also more efficient use of firewood, greater use of biogas and briquettes from agricultural wastes as also use of other non-conventional sources of energy require urgent attention of ensuring supply of energy at a minimum level to rural households.[59]

It is interesting to note that for all the studies undertaken by the Government hitherto, the initiative to set them up came from different Departments of Government of India and the focus of each of them seems to vary accordingly. The ESC was set up by the Ministry of Irrigation and Power and its report was oriented towards the supply of electricity. Sponsored by the Department of Coal, the FPC highlighted the importance of coal, recommending a supply strategy based on the utilisation of coal as the substitution fuel for other forms of energy. The WGEP was set up by the Planning Commission and had taken a more balanced view of the overall energy needs and dealt only with broader aspects of energy sector management. In terms of substance ESC, FPC and WGEP perceived energy policy in India as essentially supply, substitution and conservation oriented respectively. Limitations notwithstanding, India's efforts to formulate an energy policy can be reckoned as the most serious effort made by any developing country in this direction.[60]

Energy Policy in Sixth Plan

It was against this background that the Energy Policy was enunciated and incorporated by Government of India in the Sixth Five-Year Plan in 1980. It aimed at ensuring adequate energy supplies and protecting the environment from the adverse impact of unregulated utilisation of energy resources. The main elements of Energy Policy were:[61]

(i) Accelerated exploitation of domestic conventional energy resources—oil, coal, hydro and nuclear power;
(ii) Intensification of exploration for oil and gas to increase indigenous production;

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[59] See Report of Advisory Board on Energy, *op. cit.*, (ii–xii).
[60] T. L. Shankar: *Energy Policy Formulation—the Indian Experience in Public Policy and Policy Analysis in India*, R. S. Ganapati (ed.), New Delhi, Sage Publications, 1985, pp. 70–85.
[61] Government of India, Ministry of Energy, Department of Power: *Annual Report*, 1984–85, p. 2.

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(iii) Management of demand for oil and other forms of energy;
(iv) Energy conservation and management, with a view to increasing energy productivity;
(v) Development and exploitation of new and renewable sources of energy to meet the energy needs of rural areas;
(vi) Intensification of R&D activities in the field of new and renewable sources of energy.

Energy Policy in Seventh Plan

India's per capita consumption of commercial energy is only one-eighth of the world average and will increase with the growth in GDP and improvement in the standard of living. The Seventh Plan, therefore, has recognised that energy strategy has to plan not only for an increased availability of energy from within the country but also its better utilisation. Our commercial energy consumption has grown substantially relative to GDP growth and growing share of oil. There was a fall in the annual rate of growth of commercial energy consumption after the first oil crisis but not after the second one. This rate was 7.2 per cent from the year 1953–54 to the year 1970–71. The rate of growth came down to a mere 4.7 per cent between 1970–71 (period of first crisis) and 1979–80. It again marked an increase of 5.9 per cent between the years 1979–80 and 1984–85. The dependence on oil appears to have increased during the last three years of Sixth Plan. Though the international oil scene may be said to be comfortable now, still it may not be satisfactory with the decline in production from non-OPEC oil producing countries. Since we are not likely to become self-sufficient in oil in the near future, an intolerable burden by way of cost of oil imports will be cast on our economy should the oil prices again rise as they did in the seventies and early eighties.

There has been a rapid rise in the share of agriculture in commercial energy consumption during the sixties and seventies. Industry has come to be the largest consumer of electricity and coal. The scene is dominated by transport and household in the case of oil. In this context, the major policy objective, as envisaged in the Seventh Plan, "is to increase the use of coal in households and of electricity in transport sector in order to reduce their dependence on oil."

Though the share of non-commercial sources has been coming down in absolute terms, consumption has increased from around 126 million tonnes of coal replacement (MTCR) in 1953 to 250 (MTCR) in 1980. These renewable sources have been used extensively for hundreds of years but in a primitive and inefficient way. The indiscriminate use of non-commercial energy sources is leading to an energy crisis in rural areas. The Seventh Plan, therefore, calls for a policy to tackle it with a sense of urgency and to bring about the development and accelerated utilisation of renewable sources of energy wherever these are found to be technically feasible and economically viable.

To accomplish these objectives the energy sector gets the largest chunk of

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30.45 per cent of the total Public Sector outlay in the Seventh Plan. Of the outlay of Rs. 54,821.26 crore for the energy sector, the Union accounts for Rs. 31,492.14 crore, the States Rs. 22,786.15 crore and the Union territories Rs. 542.97 crore.[62]

[62] *Seventh Five-Year Plan*, Vol. II, *op. cit.*, pp. 279–280. Also see *ibid.* Vol. I, pp. 65–66.

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APPENDIX 4.1

Annual Per Capita Consumption of Electricity in Different States During the Years 1984–85, 1985–86 and 1986–87

(Utilities + Non-utilities in kWh)

Region	*State/UTs*	*1984–85*	*1985–86*	*1986–87**
NORTHERN REGION	Haryana	234.16	247.33	272.04
	Himachal Pradesh	103.95	122.18	144.59
	Jammu & Kashmir	118.36	128.85	140.29
	Punjab	355.60	423.23	481.40
	Rajasthan	134.69	142.98	154.56
	Uttar Pradesh	112.81	117.29	231.17
	Chandigarh	415.22	443.54	477.53
	Delhi	492.33	516.32	559.51
	Sub-Total	160.02	172.69	192.08
WESTERN REGION	Gujarat	286.26	303.57	320.21
	Madhya Pradesh	156.03	168.32	182.26
	Maharashtra	291.19	313.89	327.23
	Goa, Daman & Diu	295.40	333.03	338.63
	D & N Haveli	121.09	137.09	228.08
	Sub-Total	242.98	260.87	275.07
EASTERN REGION	Bihar	88.59	94.08	95.27
	Orissa	140.78	134.15	146.13
	West Bengal	126.42	131.33	137.21
	A.N. Islands	77.50	91.74	88.97
	Sikkim	50.02	54.95	57.23
	Sub-Total	111.13	114.30	118.99
SOUTHERN REGION	Andhra Pradesh	166.98	182.20	204.67
	Karnataka	192.13	189.08	196.97
	Kerala	128.25	139.29	135.38
	Tamil Nadu	223.32	218.18	237.63
	Pondicherry	229.29	261.78	344.62
	Lakshadweep	79.25	100.25	118.25
	Sub-Total	183.33	187.89	202.32

* Provisional.

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Appendix 4.1*(Contd)*

Region	*State/UTs*	*1984–85*	*1985–86*	*1986–87**
NORTH-EASTERN REGION	Assam	48.04	52.57	51.15
	Manipur	26.29	33.99	47.75
	Meghalaya	62.90	76.37	82.83
	Tripura	24.51	27.99	29.28
	Arunachal Pradesh	31.56	32.28	33.95
	Mizoram	24.30	31.70	25.85
	Nagaland	61.47	67.41	56.21
	Sub-Total	45.37	50.46	50.15
	Total-All India	168.52	177.98	190.99

* Provisional
SOURCE: Information received from the Ministry of Energy (Department of Power).

APPENDIX 4.2

Production and Consumption of Crude Oil and Petroleum Products

(In million tonnes)

Year	*Target*	*Production*	*Consumption*
Crude Oil			
1980–81	13.10	10.51	—
1981–82	16.90	16.19	—
1982–83	20.25	21.06	33.16
1983–84	21.30	26.02	35.26
1984–85	21.60	28.99	35.56
1985–86	30.14	30.17	43.42
1986–87	31.08	30.50	—
1987–88	31.48	30.36	47.74
1988–89	32.18	—	—
1989–90	34.53	—	—
Petroleum Products			
1980–81		24.12	30.90
1981–82		28.18	32.52
1982–83		31.07	34.66
1983–84		32.93	35.84
1984–85		33.23	38.80 (revised)
1985–86		39.88	40.87
1986–87		42.76	43.66
1987–88 (April–December)		33.00	33.75

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APPENDIX 4.3

Export of Crude Oil and Petroleum Products

Year	*Value in Crores of Rupees*
1980–81	8.41
1981–82	211.36
1982–83	1197.16
1983–84	1588.06
1984–85	1818.19
1985–86	644.73
1986–87	411.23
1987–88	648.75

Import of Crude Oil and Petroleum Products

(In million tonnes)
(Value in crores)

	Crude Oil		*Petroleum Products*	
Year	*Qty.*	*Value*	*Qty.*	*Value*
1980–81	16.25	3,349	7.29	1,918
1981–82	15.30	3,736	4.88	1,453
1982–83	16.95	4,044	5.03	1,554
1983–84	15.97	3,541	4.33	1,271
1984–85	13.64	3,430	6.09	1,915
1985–86	15.14	3,686	3.87	1,274
1986–87	15.48	2,120	3.05	653
1987–88	18.55	3,150	2.91	715

SOURCES FOR APPENDICES 4.1 AND 4.2

1. Government of India, Ministry of Petroleum: *Annual Report* (1983–84), pp. 31 and 34.
2. Government of India, Ministry of Petroleum: *Annual Report* (1984–85), pp. 4, 13 and 34.
3. Government of India, Ministry of Petroleum: *Annual Report* (1987–88), pp. 39–41.
4. R. S. Debates, USQ No. 1254, dated 21.11.88.
5. *Ibid.*, USQ No. 1299, dated 21.11.88.
6. L. S. Debates, August 5, 1986, Col. 238.
7. R. S. Debates, USQ No. 1249, dated 5.8.85.
8. R. S. Debates, USQ No. 1282, dated 6.8.85.
9. L. S. Debates, USQ No. 1055, dated 30.7.85.
10. *Seventh Five-Year Plan, op. cit.*, p. 354.
11. *Sixth Five-Year Plan, op. cit.*, p. 532.

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5

FOREIGN POLICY OF INDIA

INTRODUCTION

India's foreign policy, ever since her independence, has been one of building bridges of friendship and cooperation with all countries regardless of their economic and political systems. The foreign policy has sought to promote international peace and security; to maintain just and honourable relations between nations; and to foster respect for international law and treaty obligations. Keeping these in view, the conduct of India's external affairs has been governed by: (i) preservation of India's sovereign independence; (ii) pursuance of an independent foreign policy avoiding alignment with power blocs; (iii) acceptance of the principle of freedom for dependent peoples and opposition to imperialism, colonialism and racialism; (iv) cooperation with all peace-loving nations and the United Nations to promote international peace and prosperity; (v) reduction of world tension; and (vi) refashioning of a more equitable structure of international economic order and cooperation on the basis of justice and fairplay.

India has consistently sought a consolidation of world peace and the creation of conditions for economic progress for the newly emerging nations of Asia, Africa and Latin America from colonial domination and has striven to promote international cooperation amongst all countries. In order to achieve this, India has chosen for herself the path of non-alignment and peaceful coexistence.[1]

EVOLUTION OF POLICY

After India became independent, it had to evolve its own foreign policy in the light of its economic requirements and the prevailing political environment in the world at large. The world was fast approaching a division into two hostile camps, each endeavouring to contain the other and, in the process, attempting to muster the newly-independent nations on its side. Fear almost overshadowed hope, especially for the new independent nations which were looking forward to an era of peace and international cooperation.

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[1] Government of India, Ministry of Information and Broadcasting, *India 1983—A Reference Annual*, New Delhi, p. 464; and Government of India, Ministry of External Affairs, *Annual Report*, 1981–82, p. (iii).

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India, at independence, was far less equipped than now to play any significant role in the world's power politics. But in that world of fear and suspicion, of balance of power and spheres of influence, of cold war and military alliances, India brought a breath of fresh air and an independent approach to international affairs. It was rather with a sense of realism, grounded in the realities of her own situation as well as in the facts of political life around her, that India chose the policy of non-alignment.[2]

The architect of India's post-independence foreign policy was its first Prime Minister, Shri Jawaharlal Nehru. In his very first policy statement on the threshold of independence, Nehru had declared: "The world, in spite of its rivalries and hatreds and inner conflicts, moves inevitably towards closer cooperation and the building of a world commonwealth. It is for this one world that free India will work, a world in which there is free cooperation of free peoples, and no class or group exploits another." Nehru's vision of India's role in the world was drawn from the unique experience of India's freedom struggle under the leadership of Mahatma Gandhi, when the country attained independence from foreign domination through a prolonged struggle based on Mahatma Gandhi's ideals of truth and non-violence.[3]

Referring to free India's role in the world, in his broadcast to the nation as Vice-President of the Interim Government, on September 7, 1946, Shri Jawaharlal Nehru had declared:

> We propose, as far as possible, to keep away from the power politics of groups, aligned against one another, which had led in the past to world wars and which may again lead to disasters on an even vaster scale. We believe that peace and freedom are indivisible and the denial of freedom anywhere must endanger freedom elsewhere and lead to conflict and war. We are particularly interested in the emancipation of colonial and dependent countries and peoples, and in the recognition in theory and practice of equal opportunities for all races.[4]

This by no means meant a neutral or negative approach to international affairs. India chose to adopt a policy of non-involvement in military or political groupings or blocs, and of involvement, as far as her circumstances permitted, in world affairs in the furtherance of world peace and freedom of colonial territories.[5]

Objectives

Explaining the main objectives of India's foreign policy and its philosophical and historical background to the members of the United States Congress on October 13, 1949, Nehru had observed:

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[2] T. N. Kaul, *Foreign Relations*, published by Ministry of External Affairs, Publications Division, Government of India, New Delhi, 1972, p. 1.

[3] Jawaharlal Nehru, *India's Foreign Policy—Selected Speeches*, September 1946–April 1961, published by Ministry of Information and Broadcasting, Government of India, New Delhi, 1961, p. 2; and reproduced from the article on "India's Foreign Policy", prepared by Ministry of External Affairs.

[4] *Ibid.*, p. 2.

[5] Kaul, *op. cit.*, p. 2.

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> The objectives of our foreign policy are the preservation of world peace and enlargement of human freedom. India may be new to world politics and its military strength insignificant in comparison with that of the giants of our epoch. But India is old in thought and experience and has travelled through trackless centuries in the adventure of life. Throughout her long history, she has stood for peace and every prayer that an Indian raises, ends with an invocation to peace. It was out of this ancient and yet young India that Mahatma Gandhi arose and he taught us a technique of peaceful action. It was effective and yielded results that led us not only to freedom but to friendship with those with whom we were, till yesterday, in conflict.
>
> This is the basis and the goal of our foreign policy. We are neither blind to reality nor do we propose to acquiesce in any challenge to man's freedom from whatever quarter it may come. Where freedom is menaced or justice threatened or where aggression takes place, we cannot be and shall not be neutral. What we plead for and endeavour to practise in our own imperfect way is a binding faith in peace and an unfailing endeavour of thought and action to ensure it.[6]

Again, in an address to the University of Columbia on October 17, 1949 Nehru explained the basic objectives of India's foreign policy as follows:

> The pursuit of peace, not through alignment with any major group or power but through an independent approach to such controversial or disputed issues, the liberation of subjected peoples, the maintenance of freedom, both national and individual, the elimination of racial discrimination and the elimination of want, disease and ignorance, which affect the greater part of the world's population.

The pursuit of these objectives of world peace, freedom and international cooperation coincided with the objectives of India's national interests. Jawaharlal Nehru had said in the Constituent Assembly on December 4, 1947:

> Whatever policy we may lay down, the art of conducting the foreign affairs of a country lies in finding out what is most advantageous to the country.[7]

The foremost among the national interests of a country is national security. For India, preservation of national security meant mainly strengthening self-defence based on self-reliance. Moreover, India believed that a deliberate policy of friendship with other countries goes further in gaining security than almost anything else.

National security, moreover, meant more than physical security. Economic and social progress and political independence were equal factors in national security. India's economic needs also dictated a policy of friendship with all countries, including major powers.[8]

In the evolution of India's foreign policy, the demands of economic development have been an important factor. Explaining this aspect of India's foreign policy in the Constituent Assembly (Legislative) on December 4, 1947, Shri Jawaharlal Nehru had said:

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[6] Jawaharlal Nehru, *op. cit.*, pp. 591–92.
[7] Kaul, *op. cit.*, pp. 3–4; and C. A. Deb. (Legislative), December 4, 1947.
[8] Kaul, *op. cit.*, pp. 4–5.

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> Ultimately foreign policy is the outcome of economic policy and until India has properly evolved her economic policy, her foreign policy will be rather vague, rather inchoate and will be groping.[9]

In his broadcast of September 7, 1946, Jawaharlal Nehru had declared that India "shall take full part in international conferences as a free nation with our own policy and not merely as a satellite of another nation". This assertion of independence and sovereignty was motivated by the experience of Western domination from which India had emerged and by the need India felt to make the world realise that India and Asia had come into their own. India was encouraged to make her voice heard by the fact that she was among the first and certainly the biggest of the newly independent countries and that she occupied a pivotal position in Asia. The responsibility India assumed in this respect was not necessarily for leadership, but for taking the initiative, whenever necessary, in cooperation with like-minded countries.[10]

Panchsheel

India felt that mere opposition to military pacts was not enough and a positive alternative to them should be found. As Jawaharlal Nehru said, "the alternative to war—hot or cold—was peaceful coexistence" which he described as a "mental or spiritual attitude which synthesises differences and contradictions, tries to understand and accommodate different religions, ideologies, political, economic and social systems and refuses to think in terms of conflict or military solutions." It was this attitude which was codified as Panchsheel or the five principles of peaceful coexistence. These are: (1) mutual respect for each other's territorial integrity and sovereignty; (2) mutual non-aggression; (3) mutual non-interference in each other's internal affairs; (4) equality and mutual benefit; and (5) peaceful coexistence. These principles, enunciated in the preamble to the India-China Agreement of April 29, 1954 soon found acceptance by many countries. They were also incorporated in the "Declaration of World Peace and Cooperation" adopted by the First Afro-Asian Conference at Bandung in April 1955.

At the Bandung Conference of 29 countries of Asia and Africa, the general consensus was in favour of non-alignment and independence in foreign policy. Indeed, the years following Bandung not only saw increasing adherence to non-alignment among the countries of Asia and Africa but also brought respectability to the concept and recognition from both sides of the cold-war.[11]

Non-Alignment

India's leaders were aware that the country's institutions could be strengthened and the economic well-being of her people nurtured only in an environment of

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[9] C. A. Deb. (Legislative), December 4, 1947, p. 1260.
[10] Kaul, *op. cit.*, p. 5.
[11] *Ibid.*, pp. 16–17; and Jawaharlal Nehru, *op. cit.*, p. 9.

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peace. Peace for India did not merely mean the absence of war, but meaningful cooperation between nations. India's leaders were convinced that the country could play a meaningful role in building an environment of peace and cooperation only by rejecting alignment with any power bloc. National honour and national interest demanded that India did not mortgage her decision in domestic and foreign affairs to foreign dictate. As Jawaharlal Nehru declared: "We are in no camp and no military alliance. The only camp we should like to be in is the camp of peace which should include as many countries as possible."[12]

Thus, non-alignment has been the cornerstone of India's foreign policy. Elucidations provided from time to time by Shri Jawaharlal Nehru and later by his successors in the External Affairs Ministry on the concept of non-alignment, helped to define India's relations with other countries and her attitude to various international problems. Replying to the debate on the international situation in Lok Sabha on May 18, 1954, Shri Jawaharlal Nehru had said that the country's policy had been one of non-alignment with the two power blocs. On April 13, 1964 he stressed that the non-alignment policy as such "stems from our desire not to get involved with the two power blocs. To align ourselves with either of them would be to tie ourselves to many of their policies with which we may not agree. It would mean also some kind of break in our relations with the other group. That would be utterly wrong."[13]

Over the years, non-alignment has widely been recognised as the right policy for promoting world peace and international understanding. Reaffirming India's commitment to non-alignment, the late Prime Minister, Smt. Indira Gandhi, while replying to the debate on the Motion of Thanks on President's Address, stated thus in the Lok Sabha on January 30, 1980:

> It is necessary to reaffirm our commitment to non-alignment and to emphasise the independence of our judgement on each issue, which is not going to be affected by pressures from any quarter. Our geo-political situation, our commitment to certain fundamental principles, particularly since the days of independence and, above all, our national interests will be the determining factors in our foreign policy.[14]

As more countries became free, the number of those who believed in peaceful coexistence and wished to keep out of military alliances, increased steadily. It was natural for these non-aligned countries to come together not to form another bloc but to raise the voices of the exploited millions through a moral and political movement—the non-aligned movement. The non-alignment has met a felt need of vast numbers of people in various continents.

Consensus Policy

India's foreign policy, by and large, commands a consensus at home. This concept of consensus evolving a national policy on foreign affairs was very

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[12] Article on "India's Foreign Policy" prepared by Ministry of External Affairs, *op. cit.*, pp. 2–3.
[13] L. S. Deb., April 13, 1964, cc. 10705–07.
[14] *Ibid.*, January 30, 1980, c. 157.

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much brought to the fore in the fifties. Speaking in Lok Sabha on the motion on the international situation on May 15, 1954 Acharya Kripalani had urged that "so far as foreign policies are concerned, we should always present a national and united front".

In reply, the then Prime Minister, Shri Jawaharlal Nehru, agreed with the view expressed that the foreign policy should not be run on party lines and added:

> I agree that the foreign policy in its basic and fundamental approach should be a national policy. In big matters of policy all views should be considered but there are the smaller things resulting directly from the fundamental approach, like the branches, the leaves and the flowers, concerning which it is not possible or necessary to take the view of others.[15]

More recently, referring to the customary consensus regarding the foreign policy of the Government, the then Minister of External Affairs, Shri B. R. Bhagat, said in the Lok Sabha on March 24, 1986:

> This has been the tradition. The root of the foreign policy of this country goes down to even pre-Independence days of our national movement. Some of the basic ideas that had emerged then have been formulated by our first Prime Minister, Pandit Jawaharlal Nehru. There is a consensus behind it and I am happy to note that.[16]

While it is true that in foreign policy the nation must act as one single whole, it is equally indispensable that the Government should have more of consultation with the Opposition, so that the policy evolved therefrom would be truly a national policy.

Foreign Policy of the Present Government

The foreign policy under Prime Minister, Shri Rajiv Gandhi has remained unchanged. In his broadcast to the nation on January 5, 1985 he said:

> We have inherited a well tested and consistent foreign policy which serves our national interest. We have always believed in working for peace. Our policy to be friends with all countries on the basis of reciprocity and mutual benefit, for commitment to non-alignment and a new world economic order based on justice, equality and mutual cooperation is unshakeable. This means a total dedication to the twin causes of peace and development.[17]

Elaborating the foreign policy of the government, in his address to both the Houses of Parliament on January 17, 1985, the President, Shri Zail Singh, said:

> The new Government have inherited a coherent and principled foreign policy from Jawaharlal Nehru and Indira Gandhi. The continuity and wide acceptance of our foreign policy rests on our firm adherence to the principles and purposes of the

[15] *Ibid.*, May 15, 1954.
[16] *Ibid.*, March 24, 1986.
[17] *Foreign Affairs Record*, January 1985, p. 13.

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United Nations Charter, commitment to non-alignment and stout opposition to colonialism, old and new, and racial discrimination.[18]

Further elaboration of the policy found expression in the Prime Minister's speech in the Lok Sabha on April 10, 1985 during the debate on the Demands for Grants of the Ministry of External Affairs. He said:

> India's foreign policy has been well established for over thirty-seven years now. We are continuing along the same road. Under this foreign policy India has attained a certain position in the world, a certain authority in the world. In a way, our foreign policy was not very different from the basis of our independence struggle. It is a development of the same movement on a world-wide basis. We fought against imperialism, against colonialism, against racism, against any form of domination or discrimination. Today we still fight against these ills wherever they may be. Added to these, we have neo-colonialism and neo-imperialism which did not exist earlier. And if you really go down to the basis of disarmament, are we not getting back to Gandhiji's *ahimsa* on a wider scale? This foreign policy has helped India gain a certain standing, but more than that it has set certain precedents in the world. It was this foreign policy that started off the Non-Aligned Movement which is today one of the largest movements in the world, and which, I am sure, history will find, has been responsible for avoiding many areas of tension and may be even many wars. We will continue along this road for peace, for disarmament, for a more just social and economic order.[19]

Reiterating the continuity of the basic principles of our foreign policy, Prime Minister Shri Rajiv Gandhi, while replying in Lok Sabha on April 20, 1988 to the points raised during the debate on the Demands for Grants of the Ministry of External Affairs, said:

> There is a broad national consensus on the principles and objectives and on the way we conduct our foreign policy. Despite differences that occur in detail the main constituents of our foreign policy have been reaffirmed and reiterated a number of times. The main constituents have a continuing relevance in today's world.[20]

PARLIAMENT AND FOREIGN POLICY

Parliament has a two-fold role in its control over foreign policy. In the first place, Parliament has the power to approve, modify or reject the foreign policy framed by the Executive. Secondly, it has general supervisory powers over the conduct of foreign affairs. To enable the Parliament to play these roles, the Executive has to place all relevant information before it and keep it informed of the Government's various programmes, negotiations, treaties, agreements and other activities in its relation with different States.

Addressing Indian Foreign Service probationers on the "Role of Parliament

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[18] *Ibid.*, p. 16.
[19] L. S. Deb., April 10, 1985, cc. 424–25.
[20] L. S. Deb., April 20, 1988, c. 466.

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vis-a-vis Foreign Policy of India" in New Delhi on March 3, 1986, the then External Affairs Minister, Shri B. R. Bhagat, suggested that the role of the Parliament should be enhanced on issues relating to foreign policy. He said that the Indian Parliament had throughout proved itself a zealous guardian of the country's image and national prestige. It had strengthened the hands of the Executive to promote national interests in the world arena. He further said that the issues that had exercised the Parliament had varied over the years but continuing interest had been evinced by it in matters of national security and relations with neighbours.

Referring to the practice of the inclusion of members of Parliament in Indian delegations to the U.N., Shri Bhagat said that it had always given a further insight to them into foreign policy formulation and a first-hand experience in diplomacy. Members of Parliament were also frequently sent abroad on *ad hoc* missions to explain the Government's stand on various international issues. This was done during the Bangladesh crisis in 1971 and the Afghan crisis in 1980 and to explain the Punjab developments to the Indian community abroad in 1984. Also, several M.P.s had served with distinction on ambassadorial assignments.

Shri Bhagat informed the probationers that the Parliament had never disapproved any act of foreign policy of the Government since the Indian Republic was formed in 1950. A reading of parliamentary debates would show that Opposition views had been fully aired in the House. The tradition was regarded as a healthy practice for ensuring that all points of view were given adequate expression, he added.[21]

Constitutional Provisions

The Constitution of the Indian Republic contains provisions, which are broad and generalised, as regards the powers of the Parliament in matters relating to foreign affairs. The Parliament has exclusive power to make laws with regard to the following aspects of foreign affairs (as enumerated in entries 10 to 19 and 21 in List I of the Seventh Schedule of the Constitution):

(i) Foreign Affairs; all matters which bring the Union into relation with any foreign country.
(ii) Diplomatic, consular and trade representation.
(iii) United Nations Organisation.
(iv) Participation in international conferences, associations and other bodies and the implementation of decisions made thereat.
(v) Entering into treaties and agreements with foreign countries and the implementation of treaties, agreements and conventions with foreign countries.
(vi) War and peace.
(vii) Foreign jurisdiction.

[21] Tribune, Chandigarh, March 5, 1986.

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(viii) Citizenship, naturalisation and aliens.
(ix) Extradition.
(x) Admission into, and emigration and expulsion from India; passports and visas.
(xi) Piracies and crimes committed on the high seas or in the air; offences against the law of nations committed on land or the high seas or in the air.

Article 51 gives a directive to the State as to its relations with other countries for promoting international peace and security; for maintenance of just and honourable relations between nations; for fostering respect for international law and treaty obligations in the dealings of organised peoples with one another; and for encouraging the settlement of international disputes by arbitration. Under Article 253, the Parliament has "power to make any law for the whole or any part of the territory of India for implementing any treaty, agreement or convention with any other country or countries or any decision made at any international conference, association or other body." In terms of financial control, the Constitution vests in the Parliament the power to assent, refuse to assent, to any demands subject to a reduction of the amount specified therein.

Within the Executive, though the Minister of External Affairs is primarily responsible for the conduct of foreign affairs, the Council of Ministers or the Cabinet as a whole is collectively responsible to the Lok Sabha. The Lok Sabha can express its want of confidence in the Council of Ministers or censure an individual Minister responsible for any act of omission or commission in the execution of foreign policy and can even force the resignation of the Council of Ministers.

Parliamentary Control

India's first Prime Minister, Shri Jawaharlal Nehru, who laid the foundations for the country's foreign policy, took every care to see that the conduct of free India's foreign policy was subjected to proper parliamentary supervision and approval.

It was in connection with the consideration of the United Nations (Security Council) Bill that, on November 18, 1947 Prime Minister Nehru assured the Constituent Assembly (Legislative) of a periodical discussion of foreign affairs in the following words:

> Every matter will be brought before the Assembly at the earliest possible moment . . . I can hardly conceive of such important matters being dealt with by the Government without frequent and constant reference to the Assembly and I hope that the Convention may grow up that at least once in every Session the Assembly will discuss foreign affairs in all their aspects.[22]

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[22] C. A. Deb. (Legislative), November 18, 1947, p. 116.

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As subsequent events showed, such periodic discussions on foreign policy in Parliament proved to be of "the greatest assistance" to the Government. Prime Minister Nehru welcomed it in the Lok Sabha in the following terms on December 23, 1953 while moving a motion on the international situation:

> It has become almost the convention of the House to have a discussion on foreign affairs during every Session. I welcome this, because we live in troubled times when different problems have to be faced. Hence a consideration of this House on these matters is of the greatest assistance to them who have the responsibility to deal with those problems.[23]

India's foreign policy, it would be seen, has thus been the subject matter of regular discussions in the Parliament, when every aspect in general and specific issues, in particular, have been subjected to continuous parliamentary scrutiny.

Apart from the procedures available to both the Lok Sabha and the Rajya Sabha, an important means for the exercise of parliamentary influence on foreign policy is provided by the meetings of the Consultative Committee for the Ministry of External Affairs which take place five or six times a year. In these smaller and closed-door meetings, it is possible for the Minister to share confidential information more fully with the members and get the benefit of their reactions and advice.

Both the Houses of the Indian Parliament have equal powers of control over foreign policy except with regard to the moving of a no-confidence motion which can be done only in the Lok Sabha and the discussion on Demands for Grants which takes place only in the Lok Sabha. In both the Houses, the foreign policy and the conduct of external affairs by the Government are subjected to parliamentary scrutiny through various devices, such as the Question Hour, Half-an-Hour Discussions, Calling Attention Notices, Resolutions, General Budget Discussion, Discussion on the Annual Report of the Ministry of External Affairs, the debate on the Motion of Thanks on the President's Address, etc.

The experience gained over the years of interaction between the Executive and the Legislature in matters of foreign policy points to the wisdom of the Executive seeking parliamentary guidance and support on broad principles and approach rather than seek to involve Parliament in detailed negotiations. Day-to-day developments can be covered in the Question Hour rather than in full-scale debates which should best be reserved for major issues of national importance.

Important Aspects of Control

The important aspects of parliamentary control over foreign affairs are as under.

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[23] L. S. Deb., December 23, 1953, c. 2964.

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(i) Declaration of War

The legislative power of the Parliament extends to making laws in regard to war and peace, but Parliament has no power to declare war, to decide whether a state of war exists, to terminate the state of war, enter into armistice or conclude peace, etc. This power is exercised by the President on the advice of Council of Ministers. The Parliament can exercise influence on the conduct of war, though not directly but by discussion and voting of the Budget of the Defence forces, through questions, motions, resolutions, etc. Since the Council of Ministers is responsible to the Lok Sabha, matters relating to war and peace are normally expected to be placed before Parliament for its approval at an appropriate time in the form of a resolution, motion, etc.

(ii) Treaty Making

The task of treaty negotiations with foreign powers is essentially a part of the functions of the Executive. It is for the Government of India to enter into and ratify treaties and agreements. It is not obligatory to seek approval of Parliament to such treaties unless there is a provision in the treaty itself to that effect.

According to the present practice, the Government usually places copies of treaties on the Table of the House before or after these are ratified. Where necessary, the Government of India has brought forward a legislation to give effect to the provisions of a treaty. The ratification of treaties by the President does not prevent Parliament from discussing them. Such discussion is *ex-post facto* and the House cannot amend the treaty or agreement. It may either approve it or reject it as a whole. An adverse vote in Parliament does not, however, affect the treaty itself. Despite an adverse vote, the treaty remains in force and binding, but the adverse vote is tantamount to a vote of no-confidence in the Council of Ministers and may lead to its resignation and reconstitution of a new Council of Ministers.

Most of the international treaties have in fact been discussed in the Lok Sabha. The Tashkent Declaration signed at Tashkent on January 10, 1966 by the then Prime Minister, Shri Lal Bahadur Shastri, and the then President of Pakistan Moh. Ayub Khan, was laid on the Table of the Lok Sabha on February 15, 1966. The motion for its consideration, moved by the then Minister of External Affairs, Sardar Swaran Singh, was discussed for three days, viz. February 16, 17 and 21, 1966. During the discussion, members particularly criticised the action of the Government to withdraw troops from Haji Pir, Kargil and Tithwal areas, as according to them it militated against the Constitution and violated the solemn assurances given in Parliament. A number of substitute-motions were moved by members of the Opposition expressing their disapproval in the matter. After discussion, a substitute motion approving the stand of the Government of India on the matter was adopted.

The Treaty of Peace, Friendship and Cooperation between the USSR and India was signed by the Minister of Foreign Affairs of USSR, and the Minister

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of External Affairs of India at New Delhi on August 9, 1971. A copy of the Treaty was laid on the Table of the Lok Sabha on the same day and on the following day, the minister of External Affairs moved a motion for its consideration. In the discussion that followed, the salient features of the Treaty were discussed in all its ramifications.

On July 31, 1972, the then Minister of External Affairs, Sardar Swaran Singh, made a statement and laid on the Table of the Lok Sabha a copy of the Agreement on Bilateral Relations between the Government of India and the Government of Pakistan which was signed at Simla on July 2, 1972 by the then Prime Minister Smt. Indira Gandhi and the then President of Pakistan Shri Z. A. Bhutto. He later moved a motion for the consideration of the Agreement and discussion on the motion was held for two days. Several members criticised the action of the Government in ratifying the Agreement without consulting Parliament, particularly when the Session was scheduled to be held on July 31, 1972.[24]

Replying to the debate in the Lok Sabha on August 1, 1972, the Minister of External Affairs, *inter alia*, observed:

> Under the Constitution, it is the obligation of the Executive to ratify it. In fact, by ratifying it and by not involving Parliament in it, we have shown the highest respect to Parliament. If we did not do what is our prerogative, we would be failing in our executive duty . . and while discharging that constitutional responsibility it is farthest from us to be disrespectful to Parliament in any way.

A substitute motion, moved by a member (Shri Chintamani Panigrahi), recording the appreciation of the House in concluding the Agreement which prepared "the grounds for durable peace in the subcontinent" was thereafter adopted by the House.[25]

After the signing of the Indo-Sri Lanka Accord on July 29, 1987, Prime Minister Shri Rajiv Gandhi made a statement in Lok Sabha and Rajya Sabha on July 30 and 31, 1987, respectively and laid on the tables of both the Houses a copy of the agreement and letters exchanged between him and the then President of Sri Lanka, Shri Junius Jayewardene.[26]

Later, a short-duration discussion took place in Rajya Sabha on August 17 and 19, 1987 on the statement made by Prime Minister Shri Rajiv Gandhi in the House on July 31, 1987.[27]

From time to time, Parliament has been kept informed by the Government about the progress achieved in the implementation of the Indo-Sri Lanka Agreement.[28]

There are also instances when the Government did not place agreements entered into with foreign Governments on the Table of the House. For

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[24] *Ibid.*, July 31, 1972, cc. 246–48 (L.T. No. 3179/72).
[25] *Ibid.*, August 1, 1972, cc. 343–44.
[26] *R. S. Deb.*, July 31, 1987, cc. 301–304. *L. S. Deb.*, July 30, 1987, cc. 342–346.
[27] *R. S. Deb.*, August 17, 1987, cc. 274–332. *R. S. Deb.*, August 19, 1987, cc. 258–274.
[28] *L. S. Deb.*, August 6, 1987, cc. 569–573. *R. S. Deb.*, August 7, 1987, cc. 290–308.

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instance, on March 19, 1979, the Members and Leaders of the Opposition contended that the Government should have made a statement regarding the discussion that the Prime Minister and the External Affairs Minister had with Mr. Kosygin, Chairman of the Council of Ministers of the USSR during his visit to India in March 1979 and should also have placed the agreements entered into with the Soviet Government before the House. The then Prime Minister, Shri Morarji Desai, contended that it was not the practice to do so and the Speaker of the Lok Sabha gave the following ruling on March 20, 1979:

> Under our Constitution, the Executive is empowered to enter into agreements with foreign countries and the same does not require the sanction of Parliament unless (i) the agreement itself provides that it should be ratified by the Parliament; and (ii) unless it involves any expenditures from the Consolidated Fund.
>
> If there is any expenditure involved, an occasion will be available for discussion on the same during the discussion on Demands for Grants. Therefore, there is no constitutional requirement compelling the Government to place the agreements in question on the Table of the House. It is not the contention of the hon. members that the agreements in question provide for any ratification by the Parliament.
>
> As regards the statement to be made by the Government relating to the discussion that took place between our Prime Minister or Foreign Minister and H. E. Kosygin, there again there is no legal or constitutional requirement to make a statement though in practice the Prime Minister did make such statements whenever they had discussions with foreign leaders outside the country.[28]

Thus, in the treaty-making process, the Indian Parliament exercises only a general supervision over the work of the Executive and does not possess any direct, positive control over the making of foreign policy through the conclusion of treaties.

(iii) Diplomatic Representation and Recognition of Governments

Matters relating to diplomatic representation are decided by the Cabinet without the approval of the Parliament. This, however, does not mean that the Parliament has not been discussing these matters or seeking to influence, directly or indirectly, the Government through various means available to it, like questions, motions, resolutions, budget discussions, etc.

On March 18, 1970, during a half-an-hour discussion on the visit of a delegation of the Provisional Revolutionary Government of South Vietnam to India, members advocated that the Government should accord recognition to the Provisional Government of South Vietnam and upgrade the Indian diplomatic relationship with the Government of North Vietnam to Ambassadorial level. In reply, the Minister of External Affairs hoped that there would be an end to hostilities in that country (South Vietnam) when it would be time to assess as to what was then the lawfully constituted Government to which they must accord recognition. As to the second point, he explained that the form

[28] *Ibid.*, March 19 and 20, 1979, cc. 261–263.

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and manner in which the diplomatic relationship could be strengthened was under the active consideration of the Government.[30]

On April 16, 1975, replying to the debate on the Demands for Grants, the Minister of External Affairs, Shri Y. B. Chavan, said that the Government was watching the situation in South Vietnam and "we will do the right thing at the right time". On April 30, 1975, the Government announced in the Lok Sabha about its decision to "accord immediate recognition to the Provisional Revolutionary Government of South Vietnam".[31]

An unstarred question on according diplomatic recognition to the German Democratic Republic was asked in Lok Sabha on November 9, 1970. In reply to the question, the Government pointed out that it was not possible to indicate any date at that stage. Later, in October 1972, the Government of India accorded recognition and this action was hailed by some of the Opposition Members in the course of discussion on the international situation held on December 7, 1972.[32]

On December 6, 1971 the then Prime Minister, Smt. Indira Gandhi, made a statement in the Lok Sabha regarding the grant of recognition to the *Gana Prajatantri Bangla Desh*. Describing the events in Bangladesh and the resulting flood of refugees into Indian territory, she explained that:

> These had far-reaching repercussions on our country. It was natural that our sympathy should be with the people of Bangladesh in their just struggle. But we did not act precipitately in the matter of recognition. Our decisions were not guided merely by emotion but by an assessment of prevailing and future realities.
>
> In the light of the existing situation and in response to the repeated requests of the Government of Bangladesh, the Government of India have, after the most careful consideration, decided to grant recognition to the *Gana Prajatantri Bangla Desh*.[33]

In March 1980, the Government of India accorded full diplomatic recognition to the office of the Palestine Liberation Organisation in New Delhi. A statement to this effect made by the then External Affairs Minister, Shri P. V. Narasimha Rao, on March 26, 1980 in the Lok Sabha emphasised, *inter alia*, that "no comprehensive settlement of the West Asian problems is possible without involvement of the PLO as an equal partner in negotiations."[34]

In November 1988, India recognised the newly declared Palestinian State following the historic proclamation to that effect by the extraordinary Palestinian National Council Session in Algiers on November 15, 1988.

Making a statement in this regard in Lok Sabha on November 16, 1988, the Minister of External Affairs, Shri P. V. Narasimha Rao said:

> The denial to the Palestinians of their just rights and the illegal occupation of their homeland have been strongly condemned by successive Parliaments.

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[30] *Ibid.*, March 18, 1970, cc. 341–343.
[31] *Ibid.*, April 16 and 30, cc. 277 and 385–386.
[32] *Ibid.*, November 9, 1970 and December 7, 1972, cc. 117 and 156.
[33] *Ibid.*, December 6, 1971, cc. 16–19.
[34] *Ibid.*, March 26, 1980, cc. 313–314.

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> The establishment of an independent Palestinian State has been our cherished and single minded objective all these years. We share the happiness of the Palestinian people on this auspicious day. We are conscious that it is not the end of the process. It is nevertheless an important milestone on the path to meeting the legitimate aspirations of Palestinians within and outside the occupied territories.[35]

On July 7, 1980, the Minister of External Affairs made a statement in the Lok Sabha recognising the People's Republic of Kampuchea in Phnom Penh headed by President Heng Samrin and stated that this was in accordance with a stand which was shared by an overwhelming majority of political opinion in India.[36]

Appointment of Ambassadors Though Parliament has no power to ratify the appointment of Ambassadors, such an appointment can be the subject matter of debate. For instance, in May 1966, a member, during a discussion in the Rajya Sabha on a statement made by the Minister of Finance regarding the adverse remarks made by the Public Accounts Committee against a former Secretary to the Government in the Ministry of Steel, Shri S. Boothalingam, sought an assurance from the Minister that the said officer, who was at that time Secretary, Department of Economic Affairs, Ministry of Finance and was, according to the member's information, going to be appointed as India's Ambassador to the European Common Market at Brussels, would not be so appointed. The then Minister of Finance, Shri Sachindra Chowdhuri, however, found himself unable to give the assurance asked for. Defending the Officer, the Minister stated:

> It would be wrong to condemn a man who has served this government faithfully and against whom there has not been a whisper until the time of this PAC Report, that he should be condemned and incarcerated without an opportunity being given to him for being heard in his own defence. Therefore, I find myself unable to do anything to interfere with the proper progress of his career. I am not in a position to give such an assurance as asked for, nor am I giving any.[37]

The issue was raised in the Lok Sabha also on July 27, 1966 by Shri Bhagwat Jha Azad on a Calling Attention Notice. The Minister of Finance in reply stated that so far as Shri Boothalingam's appointment was concerned it had been made before the Fiftieth Report of the Public Accounts Committee. He added:

> So far as his posting is concerned, the posting has not been made now. The Government has sent its reply to the Public Accounts Committee. The Public Accounts Committee has not yet made its comments on that and, therefore, there is no question of any posting being made until that report is laid before the House.[38]

Subsequently, however, Shri S. Boothalingam was not appointed Ambassador to ECM, as contemplated earlier.

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[35] L. S. Deb., November 16, 1988, c. 467.
[36] *Ibid.*, July 7, 1980, cc. 414–415.
[37] R. S. Deb., May 19, 1966, cc. 2007–2010.
[38] L. S. Deb., July 27, 1966, cc. 811–812.

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Discussion on Foreign Relations Parliament has had occasion, over the years, to discuss India's relations with other countries as also the attitude of the Government of India on important world issues like the Soviet intervention in Afghanistan, conflict between Iran and Iraq, the Namibian problem, the South-East Asian problems, Sino-Indian relations, Indo-Pak relations, Indo-Sri Lankan relations, Libyan crisis,* and the like in one form or the other. The Minister of External Affairs had made statements on all these issues from time to time in both Houses of Parliament.

The speeches made by the Prime Minister or the Minister of External Affairs in Parliament on foreign affairs, besides being the medium for the reiteration of accepted policies by the Government, afford an opportunity to keep the record straight, to correct mistaken interpretations and to answer criticism.

INDIA AND ITS NEIGHBOURS

It has been a basic tenet of India's foreign policy to foster relations of mutual trust, understanding and cooperation with neighbouring countries. This stems from India's awareness that her own security and welfare are inextricably linked with the security and welfare of her neighbours.[39]

In his broadcast to the nation on January 5, 1985 after assuming office, the Prime Minister, Shri Rajiv Gandhi, said:

> One aspect of our foreign policy needs special attention. We have deep historical and cultural links with our immediate neighbours in South Asia. We share the same memories of foreign rule and look forward to the same prospects of development and a better future for our peoples. I believe firmly that we can work together to realise these common aims. We do have some problems, but we are determined to resolve them on the basis of mutual respect, sovereign equality and friendship.[40]

Referring to India's relations with her neighbours, in his address to both the Houses of Parliament on January 17, 1985, the President, Shri Zail Singh, said:

> The Government attaches high priority to develop close relations with all our neighbours. We are keen to see progress in South Asia's regional cooperation framework.[41]

India is committed to the improvement of relations with all its neighbouring countries and has consistently endeavoured to strengthen bilateral relations

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* The Prime Minister, Shri Rajiv Gandhi, in his capacity as Chairman of NAM, issued a statement on the Libyan crisis in New Delhi on April 15, 1986 saying that the US attacks on the capital of Libya, including the Presidential Palace in Tripoli were "all the more unjustifiable and deserve condemnation on the part of all the members of the Non-Aligned Movement". Extending firm support and solidarity to Libya at this critical hour, he earnestly called upon the USA and others "to exercise the utmost restraint and not to do anything to further aggravate the already tense situation in the region." (as read out in Lok Sabha by the Minister of External Affairs) (L. S. Deb., April 15, 1986).

[39] Government of India, Ministry of External Affairs, *Annual Report*, 1984–85, p. 1.

[40] *Foreign Affairs Record*, January 1985, *op. cit.*, p. 13.

[41] *Ibid.*, p. 17.

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with them on the basis of sovereign equality and mutual benefit. India has always held that friendship and cooperation with neighbouring countries would contribute to peace, stability and economic development of the region.

India has played a leading role in forming the South Asian Regional Cooperation (SARC) for promoting regional cooperation to preserve peace and stability and encouraging economic and social development in the South Asian region as a whole. The first Ministerial meeting of SARC which was held in New Delhi in 1983 took a historical step in adopting the Declaration on SARC and launching an Integrated Programme of Action covering diverse fields, such as telecommunications, meteorology, agriculture, health and population activities, etc. The second Ministerial meeting, which was held in Male (Maldives) in July 1984, expressed satisfaction that considerable progress had been achieved in implementing the programme in a relatively short time and decided to extend regional cooperation further in the fields of telecommunications, air transport links, etc. The third Foreign Ministers meeting which was held in Thimpu (Bhutan) in May 1985, drew up the draft Charter for SAARC.[42]

South Asian Association for Regional Cooperation

Thus, the efforts towards strengthening regional cooperation in South Asia between Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka led to the first summit of the seven South Asian countries. It was held in Dhaka (Bangladesh) in December 1985, where the South Asian Association for Regional Cooperation (SAARC) was formed.

The objectives of the SAARC are as follows.

(a) to promote the welfare of the peoples of South Asia and to improve their quality of life;
(b) to accelerate economic growth, social progress and cultural development in the region;
(c) to promote and strengthen collective self-reliance among the countries of South Asia, and to provide all individuals the opportunity to live in dignity and to realise their full potential;
(d) to contribute to mutual trust, understanding and appreciation of one another's problems;
(e) to promote active collaboration and mutual assistance in economic, social, cultural and technical fields;
(f) to strengthen cooperation with other developing countries;
(g) to strengthen cooperation among themselves in international forums on matters of common interest; and
(h) to cooperate with international and regional organisations with similar aims and purposes.[43]

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[42] Government of India, Ministry of Information and Broadcasting, *India 1984—A Reference Annual*, p. 495.

[43] Reproduced from article on "India's Foreign Policy", *op. cit.*, pp. 4–5.

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Referring to SAARC the then Minister of External Affairs, Shri B. R. Bhagat, said in the Lok Sabha on March 24, 1986 that when on the international forum globalism was weakening, the regional arrangements needed to be followed in the pursuit of equality of all the regional members and the mutual interest of the members, and the creation of a spirit of cooperation. All the seven SAARC countries working together could create a climate for peace, stability and cooperation, the Minister added.[44]

On assumption of office, the Prime Minister, Shri Rajiv Gandhi, took active steps to establish greater understanding with the leaders of South Asian countries. He availed of every opportunity to meet with his South Asian counterparts and this set the stage for improving the climate of bilateral relations with each country.

With a view to furthering the cause of cooperation in the region, a two-day meeting of the Foreign Ministers of SAARC countries was held at Dhaka on August 12–13, 1986 as provided for by the SAARC Charter. Addressing the meeting on the opening day, the then Minister of External Affairs, Shri P. Shiv Shanker, said that the unabated arms race and crisis in the world economy had had a disastrous effect on the economies of the developing countries with the development process in many of them suffering a severe setback. He emphasised that this lent special significance and urgency to regional cooperation, which was also a means for contributing to world peace and security and to the growth and stability of the world economy.

At this meeting the Foreign Ministers of SAARC countries decided to form a working group to make recommendations of staffing, funding, functions and any other matter related to the proposed SAARC Secretariat to be established in terms of the decision taken by the SAARC leaders at the Dhaka Summit and as provided for in the SAARC Charter.

India's financial contribution to the SAARC for the year 1986–87 was Rs. 1.25 crore.

India made a forceful plea to extend South Asian regional cooperation to new areas like education and economic sectors like trade, industry, money and finance without which the regional grouping of developing countries could not be viable. In order to mitigate human suffering, India also stressed the need for cooperation in managing disasters.

India hosted the Second SAARC Summit in Bangalore from November 15–17, 1986.

The Summit announced major decisions through a Declaration (adopted unanimously by the Heads of State or Government), a Memorandum of Understanding signed by the Foreign Ministers of SAARC countries in the presence of Heads of State or Government and a Joint Press Release, issued at the end of the Summit.

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[44] L. S. Deb., March 24, 1986; and Government of India, Ministry of External Affairs, *Annual Report*, 1985–86, p. (iii).

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As per the Memorandum of Understanding, the SAARC Secretariat was launched on January 16, 1987 in Kathmandu.

The Summit welcomed the establishment of two new technical committees under the Integrated Programme of Action—one on Prevention of Drug Trafficking and Drug Abuse and the other on Women in Development.

India played an active role in announcing a contribution of Rs. 15 million for 1987–88, and hosting a number of important meetings. The Chairmanship of SAARC remained with India till the Kathmandu Summit in 1987.[45]

India handed over the Chairmanship to Nepal at the Third SAARC Summit in Kathmandu in November 1987, at the end of a term during which almost 100 activities had been organised. Of these India had hosted 45.[46]

While the Heads of State or Government adopted the Kathmandu Declaration, the Foreign Ministers signed two agreements in the presence of the former, one on SAARC Food Security Reserve (SFSR) and the other on the Regional Convention on Suppression of Terrorism.[47]

At India's initiative, a seminar on disaster relief management was held in 1987 to consider the most fruitful ways of cooperating in this area. At the Third SAARC Summit, the leaders decided to commission a study on the causes and consequences of natural disasters and the protection of the environment in the context of recurrent natural disasters in the region. The Secretary General of the SAARC Secretariat has been entrusted with the task of having the study conducted.[48]

The Fourth SAARC Summit was held in Islamabad in December 1988. The following major decisions were taken by the Summit meeting:

(i) Education was included as an area of cooperation and a Technical Committee set up under the Chairmanship of Bangladesh.
(ii) It was decided to prepare a regional perspective plan called "SAARC-2000: A Basic Needs Perspective" based on the aggregation of development targets set by individual member countries for the turn of the century in core areas of interest, such as food, clothing, shelter, education, primary health care, population planning and environmental protection.[49]
(iii) South Asian Festivals are to be held from time to time, India is to host the first such festival.
(iv) 1989 was designated as the "SAARC Year for Combating Drug Abuse and Drug Trafficking".
(v) The year 1990 is to be the "SAARC Year of the Girl Child".[50]

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[45] Government of India, Ministry of External Affairs, *Annual Report*, 1986–87, p. 8.
[46] *Annual Report*, 1987–88, p. 7.
[47] *Ibid.*, p. 8.
[48] *Ibid.*
[49] *Annual Report*, 1988–89, pp. 8–9.
[50] *Ibid.*

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The SAARC Audio-Visual Exchange (SAVE) completed its first year in November 1988. The first special programme, the SAARC Quiz, was produced by India for telecast by member countries in February 1989.[51].

Under the Integrated Programme of Action in the 11 areas of cooperation, some 50 activities were organised between the end of the Kathmandu Summit, in November 1987, and December 1988. India participated in nearly all the activities and organised 16 of them. In addition, India hosted two meetings of Technical Committees on Agriculture and Women in Development. It also organised two meetings of the SAARC Audio-Visual Exchange Committee to plan and choose programmes for region-wide broadcast and telecast and two meetings to work out details for the SAARC Documentation Centre and for the Scheme on SAARC Chairs, Fellowships and Scholarships, respectively.

In 1988–89 India announced a contribution of Rs. 20 million for SAARC activities for the year 1989–90.[52]

Pakistan

The policy of good neighbourliness has guided India's relations with Pakistan despite having been obliged to defend herself four times against aggression. India has always taken the initiative for the normalisation of relations with Pakistan, and the Simla Agreement was signed in 1972 which provides for a step-by-step normalisation of relations with that country and the resolution of issues through bilateral negotiations. India has consistently adhered to the letter and spirit of the Simla Agreement and has given more than adequate response to any gesture of goodwill by Pakistan. Despite attempts by outside powers to disrupt the process of normalisation through massive induction of sophisticated weapons and attempts to destabilise the region, India has persisted in its initiative to widen political, economic and cultural exchanges with Pakistan. India has always attached special importance to people-to-people contact between the two countries.

The Government of India remains concerned with the increased pace of the acquisition of sophisticated weapons including nuclear ones by Pakistan and the danger of war that such a development entails.[53]

Replying to the debate on Demands for Grants pertaining to his Ministry on March 24, 1986, the then Minister of External Affairs, Shri B. R. Bhagat, said in the Lok Sabha that India did not expect that the non-aggression pact and the peace and friendship treaty with Pakistan would be settled in one round of talks. India needed more rounds of talks with that country. Referring to non-attack of nuclear facilities he said that it only meant that both the countries would not strike each other's nuclear facilities. India knew that Pakistan's nuclear programme was not at all peaceful. Once Pakistan acquired a nuclear bomb, it would change the entire security environment in the region. However,

[51] *Ibid.*, p. 11.
[52] *Ibid.*, p. 11.
[53] *India 1984—A Reference Annual, op. cit.*, pp. 493–494.

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there had been no change in India's policy towards Pakistan in any way. India had to continue her efforts for a durable peace so that her scarce resources would be utilised for the betterment of the content and quality of life of the people and not diverted to defence, the Minister added.[54]

In order to improve relations with Pakistan, the Prime Minister, Shri Rajiv Gandhi, held two meetings with President Zia-ul-Haq of Pakistan in 1985. They decided on an immediate programme of bilateral meetings for removing obstacles to the growth of effective cooperation. During his meetings with President Zia, the Prime Minister reiterated India's continuing concern regarding Pakistan's nuclear programme and the assistance that continued to be provided to Sikh extremists from across the border, despite high level assurances to the contrary. In pursuance of decisions taken by President Zia and Prime Minister Rajiv Gandhi at their meeting in New Delhi on December 17, 1985 the Indian Finance Minister visited Pakistan in January 1986 and held talks for expanding economic and commercial cooperation. The Defence Secretaries of both sides met to discuss the situation in the Siachen Glacier area. The Foreign Secretaries also held discussions on a comprehensive draft of a treaty or agreement for building lasting peace, friendship and cooperation.[55]

President Shri R. Venkataraman led a high level delegation to attend the funeral of the late President Zia-ul-Haq on August 20, 1988. India welcomed the emergence of a democratic government in Pakistan. Prime Minister Shri Rajiv Gandhi had an opportunity to visit Islamabad from December 29 to 31, 1988 in connection with the Fourth SAARC Summit. During the visit, the Prime Minister had intensive discussions with his Pakistani counterpart, Mrs. Benazir Bhutto. The talks culminated in the signing of three agreements, namely, (i) Prohibition of Attack against Nuclear Installations and Facilities, (ii) Cultural Cooperation Agreement, and (iii) Avoidance of Double Taxation of Income Derived from International Air Transport.

In order to maintain a continuous dialogue with Pakistan with the aim of improving relations, a number of important bilateral meetings at the official level were held during 1988.[56]

India is keen to work for an accelerated normalisation of relations with Pakistan. It is hoped that the impetus given to the relations by the meeting between the two Prime Ministers in December 1988 can be sustained. This will, however, depend in large measure on how Pakistan responds to India's major concerns, particularly its support to terrorist activities directed against India, its clandestine weapon-oriented nuclear programme, its acquisition of sophisticated weapons far beyond its genuine defence requirements, its reluctance to increase people-to-people contact and its unwillingness to enter into non-discriminatory trade relations with India. However, India has taken note of Prime Minister Mrs. Benazir Bhutto's statements that she wants to resolve all

[54] L. S. Deb., March 24; 1986.
[55] *Annual Report*, 1985–86, *op. cit.*, p. (iv).
[56] *Annual Report*, 1988–89, *op. cit.*, pp. 6–7.

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outstanding bilateral problems within the framework provided by the Simla Agreement and that Pakistan would not like to interfere in India's internal affairs.[57]

Bangladesh

Our relations with Bangladesh have been good for some time and we continue to try to improve our political, economic and cultural relations. Several high-level contacts between the two countries have taken place during the past few years. The Prime Minister Shri Rajiv Gandhi, met President Ershad on June 2, 1985 in Dhaka when he visited coastal Bangladesh, then ravaged by a cyclone. Later the Prime Minister met President Ershad at Nassau during CHOGM in October 1985. The Prime Minister's visit to Dhaka to attend the SAARC Summit from December 6 to 8, 1985 gave an opportunity for further contact at the highest level. This was followed by President Ershad's visit to New Delhi during July 14–16, 1986 and the then External Affairs Minister's visit to Dhaka from July 30 to 31, 1986 and again during August 11–14, 1986 to attend the SAARC Ministerial Meeting.

Our relations with Bangladesh are defined by our determination to reach mutual understanding on issues where there is some difference of opinion. In regard to the Ganga waters, which has been a matter of some disagreement in the past, the two countries are engaged in conducting joint studies of the availability of water resources of the region common to both countries and based on that to work out a long-term sharing arrangement. The Government of India has been keen to expedite the implementation of the agreement with Bangladesh to lease the Tin Bigha corridor. Legal difficulties have prevented this.[58]

As mentioned above the Prime Minister, Shri Rajiv Gandhi, accompanied by President J. R. Jayewardene of Sri Lanka, flew to Dhaka on a brief visit on June 2, 1985 to see at first hand the havoc wrought by the cyclonic storm in the coastal areas of Bangladesh. The two leaders, accompanied by President Ershad, visited Urir Char, one of the worst affected areas. During the visit, the Prime Minister assured the victims of India's help for their relief and rehabilitation. Accordingly, a project was undertaken for the construction of 100 cyclone-proof shelters at Urir Char. The project, totally financed by India at a cost of Rs. 1.5 crore, was completed and handed over formally to the Government of Bangladesh by the then External Affairs Minister on July 30, 1986. Shri Rajiv Gandhi's visit was very well received amongst all sections in Bangladesh. In particular, it was seen as a manifestation of regional solidarity.

The Minister for Human Resource Development, Shri P. V. Narasimha Rao, visited Dhaka on August 17, 1987 as the Prime Minister's Special Emissary and held extensive discussions with President Ershad on matters of mutual interest.[59]

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[57] *Ibid.*, p. 7.
[58] *Annual Report*, 1985–86, *op. cit.*, pp. 1–2
[59] *Annual Report*, 1987–88, *op. cit.*, p. 1.

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President of Bangladesh Lt. Gen. Ershad visited India on September 29, 1988. India renewed its comprehensive proposal (first made in 1978) to harness the Brahmaputra river so that its flood potential could be controlled and its abundant waters utilised for the benefit of both the countries. A Joint Task Force of water resources experts of the two countries was set up to discuss possible cooperation in flood management.

About 45,000 Bangladeshi Chakma refugees continue to remain in India almost three years after they first arrived. India continued to urge Bangladesh to create the necessary conditions so that the refugees gain the confidence to return voluntarily to their homes.[60]

Bhutan

The traditional closeness of Indo-Bhutanese relations was highlighted during the year 1985 by two bilateral visits of His Majesty the King of Bhutan to India in February 1985, and the Prime Minister, Shri Rajiv Gandhi, to Bhutan in September 1985. Both meetings were marked by a close identity of views and understanding on matters of mutual interest, reflecting the relationship of trust and consultation that prevails between the two countries.

The close and friendly relations between India and Bhutan were further strengthened in 1988. Prime Minister Shri Rajiv Gandhi and President Shri R. Venkataraman visited Bhutan during September 23–27 and October 18–21, 1988 respectively. From Bhutan the Deputy Minister of Planning Dasho Chenkyab Dorji visited India during June 15–18 and on September 16, 1988. During these visits fruitful discussions on subjects of mutual interest were held.[61]

Cooperation between the two countries flourished in the economic field. On October 21, 1988 the prestigious 336 MW Chukha Hydel Project, built entirely with Indian assistance was jointly inaugurated by the President Shri R. Venkataraman and His Majesty the King of Bhutan. As per the 1974 Chukha Agreement, India is continuing to purchase power from Chukha which is surplus to Bhutan's internal requirement.[62] In Bhutan's fifth Development Plan, India had offered finance of Rs. 134 crore (about 50 per cent of the Plan outlay) as aid.[63]

The annual bilateral meeting to discuss the Bhutanese Sixth Plan (1987–92) was held in New Delhi in June 1988. The meeting also discussed progress of the on-going projects in Bhutan. The Khaling Mini Hydel Project (inaugurated on March 8, 1988) and the Gyesta Mini Hydel Project (commissioned in July 1988) are expected to be handed over to Bhutan in 1989.

India continues to provide experts and specialists to Bhutan in the fields of forestry, industry, telecommunications, hydel-survey, education, etc.

In education, India continues to offer opportunities for secondary as well as

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[60] *Annual Report*, 1988–89, *op. cit.*, p. 3
[61] *Annual Report*, 1988–89, *op. cit.*, p. 4.
[62] *Ibid.*, p. 5.
[63] *Annual Report*, *op. cit.*, 1985–86, pp. 5–6.

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higher education, for training in various fields, such as civil aviation, police, defence, customs, medicine and engineering.[64]

In order to strengthen bilateral cultural relations, the two Governments organised a Bhutan Week in Delhi in 1989.

India continues to supply, at the request of the Royal Government of Bhutan, certain essential commodities, such as wheat, rice, sugar, coal, explosives, steel and edible oil at controlled prices to Bhutan.[65]

Nepal

India and Nepal have continued to nurture their traditional and friendly relations. His Majesty the King of Nepal visited India in September 1985, and had wide-ranging discussions with the Prime Minister. The cordial exchange of views between the two leaders paved the way for further expanding the interaction, goodwill and consultations on various bilateral matters.

Earlier, in April 1985, in pursuance of the Prime Minister's initiative to improve overall relations with India's neighbours, the Foreign Secretary visited Nepal. During his visit, a wide range of bilateral matters were reviewed, including the Joint Commission, the avoidance of double taxation and joint utilisation of water resources. A time-bound programme of four years was agreed upon in September 1985 by the two Governments to conclude the work of reconstruction of missing and damaged boundary pillars on the demarcated Indo-Nepal border.

The tradition of exchanges of high-level bilateral visits between India and Nepal continued during 1988. The Prime Minister and the King of Nepal Bir Vikram Shah Dev had an opportunity to discuss bilateral issues during the latter's visit to New Delhi in September 1988, primarily in his capacity as Chairman of the SAARC.[66]

Earlier, in May-June 1987, a fresh fillip to the promotion of people-to-people relations and cooperation among parliamentarians was given by the visit of an Indian Parliamentary delegation to Nepal and the return visit of a seventeen member Parliamentary delegation from Nepal to India (November 1987).

India's role as a leading partner in the socio-economic development of Nepal has manifested itself in a number of aid programmes. Two agreements—one for the construction of a Museum Library-cum-Documentation Centre at the Institute of Forestry in Hetauda and the other for a Rural Electrification Project to electrify 75 villages—were signed with Nepal in August 1985. India's offer of Rs. 50 crore for the construction of 204 km of the Western Sector of the East-West Highway was accepted by Nepal and an Agreement was signed in September 1985 to this effect. Progress has also been made on the proposed Karnali Hydro-electric Project in Nepal. The Indo-Nepalese joint sponsorship

[64] *Annual Report*, 1988–89, *op. cit.*, p. 5
[65] *Ibid.*, p. 6.
[66] *Annual Report*, 1988–89, *op. cit.*, pp. 3–4.

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of an international consultant for the preparation of the feasibility report was accepted by the World Bank. The project has a power potential of 3600 MW.

The Out-patient Department of Bir Hospital, constructed with Indian aid, was inaugurated by the King of Nepal in November 1985. With the modern and sophisticated equipment provided in the hospital, it has become a premier institution in the field of health-care in Nepal and is another testimony to the friendship and cooperation between the two countries.

The Eighth Inter-Governmental Committee meeting was held in Delhi in August 1985 to review the working of treaties of trade and of transit and the Agreement for Cooperation to control unauthorised trade. While there was agreement that the treaties between the two countries were functioning well, it was felt that the terms of access to each other's markets should be constantly improved. Both the Governments committed themselves to a positive approach in the promotion of Indo-Nepal joint ventures, which would add a new dimension to Indo-Nepal economic and commercial relations. The number of Nepalese products exempted from proforma procedures was increased from 14 to 18 and the insurance charges for transit cargo reduced to 0.25 per cent. The Transit Treaty was extended till March 1989.[67]

The intensive Indo-Nepal economic collaboration received an added dimension with the signing of the Agreement on the setting up of the Indo-Nepal Joint Commission in June 1987. This was a major breakthrough since the Agreement covered virtually all aspects of our bilateral economic activity and brought all inter-governmental bodies into the framework of the Joint Commission thereby enabling the effective monitoring and coordination of benefits accrued in different sectors.[68]

Negotiations for the renewal of the Treaty of Trade between the two countries were concluded successfully with the initialling in October 1988 of the text of the new Treaty of Trade. India continued to implement a number of economic development projects in Nepal under its Aid Nepal Programme. Cooperation in the field of water resources was comprehensively reviewed at the first meeting of the Sub-Commission on Water Resources of Indo-Nepal Joint Commission. Transfer of technology in water resources between India and Nepal was also discussed.[69]

Burma

India has had traditionally close and friendly relations with Burma. To strengthen these relations the former Minister of State for External Affairs, Shri Khurshid Alam Khan, paid an official visit to Burma in June 1985, on the invitation of the Burmese Foreign Minister. Various aspects of bilateral relations were discussed

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[67] *Annual Report*, 1985–86, *op. cit.*, p. 67.

[68] *Annual Report*, 1987–88, *op. cit.*, pp. 2–3.

[69] *Annual Report*, 1988–89, *op. cit.*, pp. 3–4. The Indo–Nepalese relations have recently been in a state of flux. The position in regard to various events/policy decisions, etc. covered in this study pertain only up to the beginning of 1989.

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during the visit. Steps have been taken to increase India's trade with Burma. A cultural troupe and a team of defence officials from India visited Burma in 1985. Burmese officials are being offered training facilities in India.

The Burmese Foreign Minister Ye Goung led a delegation to India during September 12–17, 1987. During the visit, Instruments of Ratification of the Maritime Boundary Agreement signed in Rangoon on December 23, 1986, were exchanged. With this, the Indo-Burma Agreement on the delimitation of the Maritime Boundary has come into force.[70]

Prime Minister Shri Rajiv Gandhi paid a visit to Burma during December 15–16, 1987 at the invitation of the Burmese Prime Minister, U Maung Maung Kha. During the visit the Prime Minister had extensive meetings with U Ne Win, Chairman of the Burma Socialist Programme Party, President U San Yu and the Burmese Prime Minister. The talks centred around ways and means of expanding and further consolidating the existing friendly relations between the two countries. The Prime Minister returned to the people of Burma the palm leaf manuscripts containing the despatches of the 19th century Burmese hero, General Mahabandoola, which were brought by the British and kept in the Victoria Memorial, Calcutta for the last 100 years.[71]

India was concerned at the serious unrest which erupted in Burma during 1988. While this was essentially an internal affair of that country, statements by Indian leaders made clear India's sympathy for the democratic aspirations of the people of Burma and anguish at the suffering inflicted on the common people and the large number of deaths of innocent people. Burmese citizens crossing into India as a result of the unrest were allowed to stay in camps in Mizoram and Arunachal Pradesh.[72]

Sri Lanka

The unresolved ethnic crisis in Sri Lanka continued to be source of great concern to the Government of India. The escalation of violence and large scale killings of Tamil civilians caused great concern throughout India. The deteriorating situation in the Northern and Eastern provinces in Sri Lanka had direct repercussions on India, most notably through the massive influx of refugees to Indian shores. The presence of refugees had posed socio-economic burdens and had added to the strength of Indian sentiments in regard to the situation in Sri Lanka.

India has been providing her good offices to the two sides to arrive at a political solution. Negotiations between the Sri Lankan Government and the Sri Lanka Tamil groups were arranged with India's assistance.[73]

A major step to solve the ethnic problem in Sri Lanka and to further develop relations of friendship, cooperation and mutual understanding with that country

[70] *Annual Report*, 1987–88, *op. cit.*, p. 5.
[71] *Ibid.*
[72] *Annual Report*, 1988–89, *op. cit.*, p. 3.
[73] *Annual Report*, 1985–86, *op. cit.*, p. (iv).

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was the Indo-Sri Lanka Agreement signed by Prime Minister Rajiv Gandhi and President Jayewardene in Colombo on July 29, 1987.

The Agreement met the concerns of all the parties. It sought to preserve Sri Lanka's unity and integrity; recognised the historical habitation of the Tamils of Sri Lanka; provided for making Tamil also as an official language of that island; and secured for the Tamils equal citizenship of that country. It also safeguards India's strategic interests.[74]

Although the Agreement has far-reaching benefits for all the parties involved, the LTTE proved unwilling to make the transition from militancy to democratic means and set out to try and wreck the Agreement. This left the Indian Peace Keeping Force with no choice but to move against the LTTE to disarm them. The Agreement resulted in substantial gains. The Provincial Councils Act and the necessary Constitutional amendments have been passed to create the Provincial Councils and devolve substantial powers to them.[75]

Despite the continued and often violent opposition of extremist elements on both sides of the ethnic divide in Sri Lanka, several steps were taken for the implementation of the Agreement. The most important of these was the successful holding of elections to the North-Eastern Province on November 19, 1988 which completed the process of creation of Provincial Councils in all the Provinces of Sri Lanka. With these elections the merger between the Northern and Eastern Provinces became a reality and the institutional framework for greater autonomy for the Tamils in Sri Lanka was in place.

The Government of Sri Lanka also passed the 16th Amendment to the Sri Lanka Constitution giving Tamils equal status as an official language along with Sinhala. Earlier, legislative action had been taken to end the vexing problem of citizenship for Tamils of Indian origin in the Central Highlands. With the establishment of near normal conditions the displaced persons continued to return to their homes. More than 34,000 Tamil refugees have returned to Sri Lanka from India since the signing of the Indo-Sri Lanka Agreement.

The commitment of the people of Sri Lanka to democratic norms was again demonstrated in the Presidential elections in December 1988. These developments enabled the Government to start withdrawing some elements of the Indian Peace Keeping Force. If this encouraging trend is maintained in the coming year, it should be possible to continue the process of phased withdrawal of the IPKF.

1988 was marked by a continuation of close consultations and exchange of visits between the two countries. Prime Minister Premadasa made a month-long visit to India in March 1988. India's Minister of Defence visited Colombo at the end of May as part of this continuing exchange of visits.[76]

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[74] *Annual Report*, 1987–88, *op. cit.*, p. 1.

[75] *Ibid.*

[76] *Annual Report*, 1988–89, *op. cit.*, pp. 1–2. The Indo–Sri Lankan relations have recently been in a state of flux. The position in regard to various events/policy decisions, etc. covered in this study pertain only up to the beginning of 1989.

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China

An important and early example of India's desire to establish good-neighbourly relations was the agreement with China in 1954 which enunciated the *Panchsheel* or the five principles of peaceful co-existence as the basis for relations between states. India continued to subscribe to these principles even after the Chinese attack in 1962.

India took the initiative in 1976 to normalise relations with China by proposing the restoration of ambassadorial-level representation in each other's capital. Since then India–China relations have shown improvement in several areas though the crucial boundary issue has yet to be resolved. However, efforts to improve relations with China have continued. Bilateral exchanges in various fields have been taking place. So far, seven rounds of India–China Official Level Talks have been held.[77] The discussions have focussed on the crucial boundary question and have also covered bilateral exchanges in the fields of culture, education, science and technology and an exchange of views on the international situation. A settlement of the long outstanding question of the Indian Embassy property in Beijing was reached at the 6th Round of Talks in November 1985.

It is India's policy that genuine normalisation of its relations with China could be achieved only when there is a just and satisfactory settlement of the boundary question. Substantive discussions on the India–China boundary question were, therefore, initiated during the 6th Round of Official Level Talks held between India and China in New Delhi in November 1985. Adopting a sector-by-sector approach, both sides explained their respective positions on the Eastern Sector of the India–China boundary. These discussions on the Eastern Sector of the boundary were continued during the 7th Round of Official Level Talks held in Beijing in July 1986. Substantive discussions on the Western Sector were also initiated during the 7th Round. A programme of exchanges in the fields of culture and science and technology was finalised during these talks. Both delegations also exchanged views on the international situation.

The 35th anniversary of the establishment of diplomatic relations between India and China was observed by both countries on April 1, 1985. The Prime Minister, Shri Rajiv Gandhi, had a cordial meeting with the Chinese Premier, Mr. Zhao Ziyang, when the latter called on the Prime Minister in New York during the 40th anniversary celebrations of the United Nations in October 1985.

A Trade Protocol for the year 1986 was signed between India and China in New Delhi on November 23, 1985. The Protocol envisaged a total trade turnover of US $10 to 16 crore between the two countries during 1986 in commodities such as iron-ore, manganese, chrome and shellac, power equipment and machinery, petroleum products and non-ferrous metals.[78]

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[77] *India 1984–A Reference Annual*, *op. cit.*, p. 493.
[78] *Annual Report*, 1985–86, *op. cit.*, p. 16.

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Chinese Intrusion into Indian Territory On July 18, 1986 the then Minister of External Affairs, Shri P. Shiv Shanker, informed Lok Sabha that in mid-June 1986 about 40 Chinese personnel intruded approximately 2–3 km into the Sumdorong Chu Valley area of Arunachal Pradesh. In response to India's protest on this issue, the Chinese Government conveyed on June 26, 1986 that the matter could be taken up for discussion at the forthcoming official level talks.

Subsequently, the matter was discussed intensively at the 7th Round of India China Official Level Talks held in Beijing from July 21 to 23, 1986. During his meetings with Acting Premier Wan Li and Foreign Minister Wu Xuenqian, the leader of the Indian delegation, the then Foreign Secretary, Shri A. P. Venkateswaran, expressed India's grave concern over the Chinese intrusion. It was stressed that such intrusions added tensions and vitiated the atmosphere for finding a just and satisfactory solution to the boundary question. As stated by the then External Affairs Minister in the Lok Sabha, on August 1, 1986, the Chinese did not respond to our concern in a satisfactory manner.

Making a statement in the Lok Sabha on August 8, 1986 regarding the Chinese intrusion, the then Minister of State in the Ministry of External Affairs, Shri K. R. Narayanan, said that it had come to the notice of the Government on August 4, 1986 that the intruding Chinese personnel had improvised a helipad in Wangdung in the Sumdorong Chu Valley area of Arunachal Pradesh and that a Chinese helicopter had actually landed there. There was relatively easy accessibility of the area to the Chinese from the Tibetan side of the international boundary. Besides, the nature of the terrain was such that it was also not difficult to clear the ground to serve as a make-shift helipad. It had also been noticed that the Chinese were setting up tents and building huts in the area. The Minister said that these developments were a cause for deep concern to the Government of India. The Government, therefore, had taken up diplomatically the issue of this intrusion with the Chinese authorities both in New Delhi and in Beijing.

The Minister further informed the House that India had been stressing that both the sides should maintain peace and tranquility on the border and that any problem that might arise should be resolved through consultations. The Government of the Peoples' Republic of China had also accepted this approach. It was the intention of the Government of India to seek a solution to this latest intrusion through consultations and negotiations in pursuance of India's policy of finding a peaceful and negotiated settlement to the border question with China and to improving relations between the two countries, he added.[79]

Prime Minister's Visit to China The Prime Minister Shri Rajiv Gandhi's visit to China during December 19–23, 1988 (the first visit by a Prime Minister of India to China in thirty-four years) was recognised as an event of major

[79] L. S. Deb., July 18, 1986 and August 8, 1986.

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importance and historic significance. Both the countries jointly reaffirmed their faith in the Five Principles of peaceful co-existence.[80]

The Prime Minister held discussions on bilateral, regional and international issues with the Chinese Premier, Li Peng, Chairman of the Central Military Commission, Deng Xiaoping, General Secretary of the Chinese Communist Party, Zhao Ziyang, and the Chinese President, Yang Shangkun.

During the visit, the two governments signed an agreement on cooperation in science and technology, an agreement relating to civil air transport and an executive programme for the years 1988, 1989 and 1990 under the Agreement for Cultural Cooperation.

Earnest and in-depth discussions were held on the boundary question. It was decided to establish a Joint Working Group on the question. The Group will address the question of an overall boundary settlement, as well as ensure the maintenance of peace and tranquility in the border areas.[81]

Prior to the Prime Minister's visit, a Cultural Agreement between India and China was signed in May 1988. An annual Trade Protocol for 1988–89 was also signed in June 1988, during the visit of the Commerce Secretary, Shri A. N. Verma to Beijing.[82]

During 1988, delegations that visited India from China included those in the fields of electronics, biotechnology, forestry, buffalo breeding and the film industry. A five member delegation from the State Planning Commission of China also visited India in June 1988. Delegations of CPI, Cong.I, CPI(M) and All India Forward Block also visited China.[83]

Maldives

India's close association and cooperation with Maldives is a continuing one. The Maldivian President, Mr. Gayoom, paid a short visit to New Delhi in February 1985. During his visit he met the President, Shri Zail Singh, and the Prime Minister, Shri Rajiv Gandhi. President Gayoom was assured of India's full cooperation in areas where Maldives might need Indian assistance. Also, the Prime Minister paid a return visit to Male in February 1986 and assured Maldives of India's full cooperation in her development. Specifically India agreed to set up a medical complex and hotel training institute; the Prime Minister also agreed to assist the Maldives in the development of inter-atoll telecommunications, supply of meteorological data and reception of selected Indian TV programmes. It was also agreed that Indian experts would take up the restoration and preservation of an ancient mosque in Male; that India would send more doctors and teachers to Maldives and provide scholarships and training for Maldivian students.

India offers training facilities to Maldivian officials in different fields such as

[80] *Annual Report*, 1988–89, *op. cit.*, p. 17.
[81] *Ibid.*
[82] *Ibid.*, p. 18.
[83] *Ibid.*

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civil aviation, customs, hotel management, manpower survey, parliamentary procedures, etc., under the Indian Technical and Economic Cooperation Programme.[84]

In February 1987, the Maldivian Trade Minister Shri Ilyas Ibrahim visited India along with a three-member delegation to discuss ways and means of expanding trade and industrial collaboration with India.[85]

India announced a relief assistance of Rs. 20 lakh to the Government of the Maldives to recover the loss, and to repair the damage, particularly to the international airport at Male, caused by a tidal wave.[86]

When foreign mercenaries invaded Male in the early hours of November 3, 1988, India had no hesitation in responding to a request from the democratically elected Government of the Maldives for immediate military assistance to protect their independence, non-alignment and sovereignty. Indian troops landed in Male in less than fourteen hours of receiving the appeal from its Government and speedily brought the situation under control. The Indian Navy conducted a successful commando operation on the high seas and rescued Maldivian hostages who had been seized by the fleeing mercenaries.

Almost every country in the world supported India's action to assist Maldives in its hour of need. Indian troops started withdrawing the very next day leaving a small contingent of 275 troops at the express request of the President of Maldives.

President Gayoom paid a two-day visit to India during December 7–8, 1988. In his meetings with the Indian Prime Minister, ways and means of further expanding and consolidating bilateral relations were discussed.[87]

Afghanistan

India's bilateral relations with Afghanistan are cordial. India has been providing economic and technical assistance to Afghanistan under ITEC Programme of the Government of India and within the framework of the Indo–Afghan Joint Commission. It is our policy to provide assistance to Afghanistan in those areas from which the common man benefits directly. India has provided assistance in the areas of public health, education, industrial development, etc.

India is opposed to both intervention and interference in Afghanistan and is of the firm view that there can be no military solution to the Afghan problem. India stands for a peaceful negotiated political settlement in Afghanistan. India had consistently supported the initiative of the UN Secretary-General in his efforts to bring about peace in Afghanistan.[88]

The signing of the UN sponsored Geneva Agreements on Afghanistan in April 1988 was an important step towards a peaceful political settlement of the

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[84] *Annual Report*, 1985–86, *op. cit.*, p. 4.
[85] *Annual Report*, 1987–88, *op. cit.*, p. 7.
[86] *Ibid.*
[87] *Annual Report*, 1988–89, *op. cit.*, p. 2.
[88] *Annual Report*, 1985–86, *op. cit.*, p. 4.

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Afghan problem. India welcomed these accords maintaining that their sincere implementation by all parties concerned could lead to restoration of peace and stability in the region. India stands for a sovereign, non-aligned and independent Afghanistan and further feels that the Afghans themselves should be allowed to decide upon their future without external pressures.[89] President Najibullah paid an official visit to India during May 4–6, 1988 for an exchange of views. The visit took place in the context of India's continuing dialogue on the Afghanistan problem with all concerned including all shades of Afghan opinion.[90]

Bilateral relations between India and Afghanistan have developed satisfactorily. India remained in close touch with the Government of Afghanistan on all matters of mutual interest and undertook to provide an assistance of Rs. 10 crore for relief and rehabilitation of the Afghan refugees.

A mid-term review meeting of the Indo-Afghan Joint Commission on Economic, Technical, Trade and Cultural Cooperation was held in Kabul in June 1988. The Indo-Afghan Cultural Exchange Programme has been extended up to December 31, 1990.[91]

INDIA, SOUTH-EAST AND EAST ASIA

The major field of India's interest in foreign policy has been Asia. Occupying a pivotal position on the continent of Asia, India has shown a readiness to involve herself in the affairs of Asia, not with a view to dominating but with a view to promoting peace and freedom. From the beginning India has emphasised a policy of "hands off Asia" as far as the outside powers were concerned.

India's foreign policy, therefore, attaches considerable importance to maintaining friendly bilateral relations with the countries in South-East and East Asia and the Pacific Region. India's relations with these countries have been marked by a steady and progressive improvement during the recent years. There has been a perceptible and steady growth in economic and technical relations with practically every country in the region. Trade talks have been held with Malaysia, Philippines and Australia for identifying and intensifying areas of further cooperation. India also participates in joint ventures with a number of these countries. A large number of Indian experts also function in South-East Asia, while training in India in various special disciplines is imparted to several persons coming from this region. All these demonstrate the steadily growing bilateral relations between India and the South-East Asian countries.

India maintained very cordial relations with the three Indo–China States. With Vietnam, the tradition of mutual visits at high levels was kept up. The Prime Minister, Shri Rajiv Gandhi, paid a one-day official visit to Vietnam in

[89] *Annual Report*, 1988–89, *op. cit.*, p. 7.
[90] *Ibid.*, p. 8.
[91] *Ibid.*

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April 1988. At the invitation of the Prime Minister, Mr. Nguyen Van Linh, the General Secretary of the Vietnamese Communist Party came to India as the Chief Guest at the Republic Day celebrations.

The third Indo–Vietnamese Joint Commission Meeting was held in New Delhi in January 1989. There was a thorough review of many cooperation projects and of credits and grant assistance.

Increasing flexibility and an easing of tension in South-East Asia are contributing to the process of negotiating a political solution to the Kampuchean problem. India has been in close contact with the various parties to the conflict and has been seeking a political solution which ensures the sovereignty, territorial integrity and non-alignment of Kampuchea. In this context, the visits of the Kampuchean Prime Minister Mr. Hun Sen to India in November 1988 and the visits of the Minister of State for External Affairs, Shri K. Natwar Singh to Vietnam, Laos, Thailand, Malaysia, Indonesia and Singapore, especially his meeting with Prince Sihanouk as the Prime Minister's Special Envoy on Kampuchea, were very significant.

India also worked through the forum of Senior Officials' Meetings of the non-aligned countries held in July and August 1988 to advance a peaceful solution. The NAM has welcomed the Djakarta Meetings under Indonesia's leadership. India's initiatives have been supportive of the regional initiative.[92]

During 1988–89 there were many visits to South-East Asian countries by Indian leaders and officials leading to increased interaction in economic, commercial and other fields. Among the other distinguished visitors from South-East Asian countries to India were the Foreign Minister of Indonesia, the Prime Minister of Singapore and the Under Secretary for Foreign Affairs of the Government of the Philippines.

From India, besides the visit of the Minister for Textiles, Shri Ram Niwas Mirdha, to Singapore, a delegation from the Confederation of Engineering Industries had also visited Singapore.[93]

As regards Indo–Australian relations, these continue to be cordial. Both countries have now been engaged in exploring areas of further cooperation in the fields of commerce, scientific matters, metals and minerals exploration.

During 1988–89 there was a marked increase in exchanges with Australia in the fields of trade, science and technology, mining coal, agriculture, energy and railways. India's participation in the bi-centennial celebrations of Australia, the signing of a new Cultural Exchange Programme for the years 1989 to 1991, the eleventh meeting of the India–Australia Joint Trade Committee in Canberra in May and the discussions held during the visit of Mr. John Kerin, the Australian Minister for Primary Industries and Energy with his counterparts in India culminated in the visit of the Australian Prime Minister Mr. R. J. L. Hawke in February 1989. The third meeting of the Joint Business Council took place during that visit. The visit of Mr. Hawke and his talks with Prime Minister

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[92] *Annual Report*, 1988–89, *op. cit.*, pp. ix–x.
[93] *Annual Report*, 1988–89, *op. cit.*, p. (ix).

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Rajiv Gandhi has given a new impetus to the relationship. Memoranda of Understanding covering the fields of Railways, Telecommunications and Meteorology as well as one on Concessional Financing of Development Projects were also signed.[94]

Friendly relations also exist with New Zealand.

Indo–Japanese relations had received a new impetus with the visit of the Japanese Prime Minister to India in 1984 and the reciprocal visit of Shri Rajiv Gandhi to Japan in 1985.[95] During the latter's visit, an Agreement between the two countries in the field of science and technology was signed. In his address to the Japanese Diet (Parliament) the first ever by an Indian Prime Minister, Shri Rajiv Gandhi emphasised the need to enhance cooperation between India and Japan in the economic, commercial, scientific and technological fields, as well as for increasing exchanges, in the cultural and educational areas to promote better understanding between the peoples of the two countries. In this regard it was agreed to organise a 'Festival of India' in Japan in 1987–88 and a Japan week in India.[96] The Festival of India jointly inaugurated in April 1988 by the Indian and Japanese Prime Ministers was organised in more than 30 cities in Japan.

During 1988–89, India's relations with Japan in the economic, commercial, cultural and scientific fields registered further progress. During the year, Japan's Official Development Assistance (ODA) to India was to the tune of Yen 87.9 million which made her the largest bilateral donor to India in gross terms.[97]

It is significant that Japan has been showing an increasing interest in India's industrial development. Japan and India have signed a number of Joint ventures of which Maruti-Suzuki project is an outstanding example of bilateral cooperation.[98]

President Shri R. Venkataraman, accompanied by the Minister for External Affairs represented India at the funeral of Emperor Hiro Hito of Japan on February 24, 1989. During his talks with the Japanese and other leaders, the President noted the widespread desire to foster the current improvement in the climate of international relations.[99]

INDIA, WEST ASIA AND AFRICA

India is a bridge between East and West Asia, and between Central and South-East Asia. She cannot, therefore, ignore what is happening in the countries in West Asia. Besides, her large Muslim population provides her with an added

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[94] *Ibid.*
[95] *Annual Report*, 1988–89, *op. cit.*, p. 18.
[96] *Annual Report*, 1985–86, *op. cit.*, p. 17.
[97] *Annual Report*, 1988–89, *op. cit.*, p. (xi).
[98] Kaul, *op. cit.*, p. 20 and *India 1984—A Reference Annual*, *op. cit.*, pp. 496–497.
[99] *Annual Report*, 1988–89, *op. cit.*, p. (ix).

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reason for having the friendliest of relations with the Islamic States of West Asia.

Palestinian Issue

Even before her independence, India took a principled stand on the Palestine issue in the UN. Steering a middle course between partition and a unitary state, India proposed a Federal State "with an Arab majority in charge of the Federal State but with autonomy for the other region—Jewish region". But India's efforts in the Palestine affair were defeated by the pressure of some of the Great Powers. Jawaharlal Nehru commented at that time that "some of the major powers were out for partition and ultimately got it, with the result that there is trouble in the Middle East now and the possibility of a great deal of trouble in future." While India has recognised Israel's right to exist within secure borders, she has unreservedly condemned Israel's aggressive tactics against her Arab neighbours and her efforts to keep the territory occupied through aggression.[100] Even after 37 years of efforts of UN, the question of Palestine remains as tangled as ever before with the major protagonists in the field remaining as far apart as they were in the beginning of the United Nations involvement on this issue.

During 1988–89 an important development was the renewed international focus on the Palestinian question as a result of the Palestinian uprising (Intifida) in the West Bank and the Gaza Strip against continued Israeli occupation. The uprising was largely responsible for the decision to establish the State of Palestine. In October 1988, Chairman Yasser Arafat visited India to brief the Indian Government on various options that were under consideration by the PLO. He was assured of India's full support. The historic proclamation of an independent Palestine state was made on November 15, 1988 at the end of the extraordinary Palestinian National Council Session in Algiers during which a wide-ranging political statement aimed at creating a positive climate for re-sumption of the Middle East peace process was also adopted. India was among the first countries to recognise the newly declared Palestinian State.[101] India continued with its firm and unequivocal support for the Palestinian cause bilaterally and in the relevant international fora. Israeli atrocities against un-armed Palestinian civilians in the occupied territories were strongly condemned. India had expressed regret at the US refusal of a visa to Chairman Yasser Arafat to address the UN General Assembly session in New York. India also deplored the assassination in Tunis in April 1988, of Khalil Al Wazir (Abu Jihad), Deputy Commander-in-Chief of Palestine Revolutionary Forces. India hopes that the early convening of an International Peace Conference under UN auspices with the participation of all parties to the Arab-Israeli dispute including the PLO, will provide the way for effective Middle-East peace negotiations.[102]

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[100] Kaul, *op. cit.*, p. 33.
[101] *Annual Report*, 1988–89, *op. cit.*, p. 21.
[102] *Ibid.*, pp. 21–22.

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Situation in Lebanon

The situation in Lebanon continues to be a matter of concern to India. India stands for the withdrawal of all foreign forces from Lebanon, beginning with those of Israel and, in this context, it has reiterated its support for the UN Security Council resolutions 508 and 509. India hopes that the Lebanese people will, in a spirit of national reconciliation, be able to bring about peace and security in Lebanon. India has always stood for a strong, united and non-aligned Lebanon.

Iran-Iraq War

The Iran-Iraq war, which started in September 1980, had been a constant subject of India's attention. India deplored the shooting down of an Iranian civilian aircraft by the US Navy on July 3, 1988. The ceasefire in the war on August 20, 1988 was warmly welcomed and it was hoped that negotiations under UN auspices to implement the UN Security Council Resolution 598 would lead to the establishment of a just and durable peace and strengthening of the forces of non-alignment in the region. India deputed 15 military officers to serve with the United Nations. Iran and Iraq Military Observers Group established to monitor the ceasefire. Special envoys from Iran and Iraq visited India during 1988–89 to brief on developments concerning the war and the post-war negotiations. India has been invited to and hopes to participate actively in the post-war reconstruction of Iran and Iraq.[103]

Colonialism and Racialism

From the very day of attainment of her independence, India was convinced that her own independence would not be meaningful while other nations remained under colonial rule. India's efforts at the United Nations and elsewhere are aimed at putting an end to the vestiges of colonial rule and at the elimination of racism and *apartheid*. India is thus deeply committed to the support for the Namibian people in their valiant struggle for independence under the leadership of SWAPO and to the people of South Africa in their brave struggle against the abhorrent system of *apartheid*.

International opposition to *apartheid* initiated by Gandhiji has been gathering strength over the years. It was India which first brought the question of racial discrimination in South Africa before the United Nations in 1946. Since then, a powerful international consensus has developed against the racist principles of the *apartheid* system.[104]

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[103] *Annual Report*, 1988–89, *op. cit.*, pp. 23–24.

[104] Article on "India's Foreign Policy", *op. cit.*, p. 5; and *Foreign Affairs Record*, August 1985, p. 253.

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Namibia

India continued to support the demand for immediate Namibian independence as envisaged in the UN Security Council Resolution 435 of 1978 and warmly welcomed the conclusion of the Brazzaville Protocol which laid a definite framework for the implementation of the same Resolution. The President of SWAPO visited India in October 1988 at the invitation of the Prime Minister Shri Rajiv Gandhi to discuss various issues relating to Namibia's transition to independence and to share views on what assistance India would offer to SWAPO and Namibia. India is contributing personnel to the civilian component of the United Nations Transition Assistance Group which is headed by an Indian, General Prem Chand (Retd.).[105]

Relations with African Countries

India's relations with African countries have continued to develop satisfactorily.

India has continued with its policy of strengthening the on-going process of multi-faceted cooperation with the countries of the African region extending moral, material and diplomatic support to the friendly states and liberation movements while continuing with the policy of firm opposition to the system of *apartheid* and racial discrimination in South Africa and a total boycott of the racist regime practising it. India responded with understanding to the fast evolving political situation in Southern Africa and generally endorsed the position in this regard taken by the Frontline States at their meeting in Arusha (Tanzania) in April 1984. The Arusha meeting, *inter alia*, called upon South Africa to dismantle the root cause of instability in the region, i.e. *apartheid*.

Special efforts were made to intensify relations with Southern African countries. The Prime Minister Shri Rajiv Gandhi accompanied by a high-powered delegation, paid visits to Zambia, Zimbabwe, Angola and Tanzania in May 1986 to highlight the value India attaches to bilateral relations with these countries as well as to underline India's solidarity with them in regard to the liberation struggle in South Africa and Namibia. India also entertained visits from President Oliver Tambo of the African National Congress (ANC) and from President Sam Nujoma of the South West Africa People's Organisation (SWAPO) in May 1986. The South African question was the subject of a Mini-Summit of seven Commonwealth Countries in London in August 1986 in which Prime Minister Shri Rajiv Gandhi tried to bring about unanimity of thinking in the matter of sanctions against South Africa in addition to the measures decided upon at the Nassau Commonwealth Summit in 1985.[106]

As the British Government was not immediately prepared to implement even the minimum measures, which all the Commonwealth countries had agreed to at Nassau, towards the dismantling of *apartheid* in South Africa, India along with 32 other member countries did not participate in the Commonwealth

[105] *Annual Report*, 1988–89, *op. cit.*, p. 26.
[106] *Annual Report*, 1988–89, *op. cit.*, p. 27.

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Games held in Edinburgh. India's decision not to participate in the Games was an expression of her solidarity with the oppressed people of South Africa and with the Frontline States.[107]

Earlier, on August 7, 1986, the Lok Sabha had adopted unanimously a resolution on South Africa which, *inter alia*, condemned the inhuman policy of *apartheid* of the racist regime of South Africa; expressed the solidarity of the Indian people with the brave freedom fighters of South Africa and supported their just struggle for human rights; denounced the obstinate refusal of the South African authorities to enter into meaningful negotiations with the African National Congress and other political organisations to dismantle *apartheid*; condemned the action of governments which provided moral encouragement and material assistance to the racist government of South Africa; appealed to all the freedom loving forces of the world to remain united in the historic movement against *apartheid*; and appealed to parliamentarians of the world to use all moral and constitutional means at their disposal to persuade governments and other authorities all over the world to take effective action against the South African authorities.[108]

Diplomatic Status to SWAPO

During the NAM Ministerial Coordinating Bureau Meeting in New Delhi in April 1985, the Prime Minister, Shri Rajiv Gandhi, announced India's decision to accord full diplomatic status to the SWAPO Representative in India. During that meeting as well as at the NAM Ministerial meeting at Luanda and the UN, India forcefully reiterated its stand that the "Interim Administration" set up by the Pretoria regime in Namibia with the connivance of the discredited and unrepresentative Multi-Party Conference was illegal, that the UN Security Council Resolution 435 was the only basis for a settlement of the issue, that SWAPO was the only legitimate representative of the Namibian people, and that extraneous issues like the withdrawal of Cuban troops from Angola, should not be linked to the question of the independence of Namibia.[109]

INDIA AND THE BIG POWERS

India's policy of non-alignment in the cold-war has often been misconstrued as a policy of equidistance between the two rival blocs. Non-alignment does not mean neutrality and does not impose an obligation on India to maintain a kind of parity between rival powers. Non-alignment was essentially designed to safeguard India's independence of judgement and action in world affairs including her attitude towards relations with the Big Powers. India's bilateral relations with the Big Powers are determined largely by her national interest

[107] L. S. Deb., August 14, 1986.
[108] L. S. Deb., August 14, 1986.
[109] *Annual Report*, 1985–86, *op. cit.*, p. 24.

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and by her independent judgement of the policies and actions of the Powers concerned. They will naturally be guided by the respect and response shown by these countries to India's policies and interest.[110]

USA

Indo–US relations, over the last four decades, have had an interesting history of both cooperation and differences. In assessing their state today, one cannot ignore the past 40 years of history. On the negative side, it has been a matter of concern for us that from the very beginning, the USA has been somewhat suspicious of India's policy of non-alignment. Located in totally differing geopolitical contexts, the worldviews of the two countries have been markedly different, as indeed have been their security priorities and interests. The friction in the relations as a result of the differences between the US preference for bloc politics and that of India for non-alignment goes back to 1947 when Dulles expressed his suspicions of our stand on South Africa. Even today complaints can be heard of the lack of evenhandedness in India's stand on international issues and criticism of NAM for opposing US policies in various parts of the world. A second complicating factor has been US policies towards South Asia, which have almost continuously impinged adversely on India's security interests. This ranges from the US stand on Kashmir, to their criticism of the liberation of Goa and their active opposition to the creation of Bangladesh. Tied to this has been their security relationship with Pakistan which, with only a brief interruption, has been a running sore where Indo–US relations are concerned. On the economic side too, the differences in approach have been often sharp with the USA not concealing its distaste for an economic growth model relying on the public sector and its opposition to what has been seen as excessive Indian protectionism. Many of these themes continue to affect the relationship today even if they have changed somewhat in form or detail.

At the same time, evaluation of Indo–US relations should take into account the more positive aspects of the relationship. India has been the largest aid recipient and the role of PL 480 Food Assistance Programme was crucial for our nation's welfare in the 60s. India has also been the largest recipient of IDA soft loans to which the USA has been the largest single contributor. These loans have played an important role in some aspects of our economic development. The United States is universally also credited with providing the catalytic impulse for the Green Revolution in India. USA has been one of India's larger trade partners and there have been a number of collaborative projects over the years. In more recent times, the immigration of half-a-million Indians to the USA has brought out a new facet to the relationship. A Memorandum of Understanding on technology transfer signed in November 1984 opened new avenues for Indo–US cooperation.

The new procedures under the Memorandum of Understanding resulted in the clearance of many computer systems for governmental and non-governmental

[110] Kaul, *op. cit.*, p. 35.

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organisations in India.[111] Review meetings of the Memorandum of Understanding were held with US Government in January 1988, March 1988 and January 1989. Several details and modalities of the technology transfer arrangements were worked out and a comprehensive system has been put in place.[112]

Notwithstanding the progress in Indo–US relations, some differences remain on bilateral, regional and international issues. Primary among these differences is the respective approaches of the two countries to the non-peaceful dimensions of Pakistan's nuclear programme. India is disappointed that the USA has chosen to waive its own non-proliferation laws in favour of Pakistan.

The continued supply of sophisticated arms by the USA to Pakistan is another important factor generating friction between the two countries. India repeatedly impressed upon the US Government that the supply of sophisticated arms to Pakistan adversely affected Indo–US relations, encouraged an arms race on the subcontinent and jeopardised the normalisation of relations between Pakistan and India.

Yet another issue which casts a shadow over Indo–US relations is the activities of extremist leaders who are operating from the US and supporting the so-called Khalistan movement in India. The detection of conspiracies against the Prime Minister and the former Chief Minister of Haryana, activities of extremist groups like the World Sikh Organisation and the training of extremists in a mercenary training school in the USA were the cause of deep concern in India. India welcomed the desire of the United States Government to cooperate with it in curbing the international dimensions of terrorist violence against India, and noted some positive steps taken in this regard.

Indo–US relations were marked by greater understanding and cooperation during 1987–89. A high water-mark in 1987 was the Prime Minister Shri Rajiv Gandhi's working visit to Washington on October 20, 1987 while returning from the Commonwealth Summit in Vancouver. One of the main objectives of the visit was to revitalise the relationship with a new agenda for the next few years and to this end a package of initiatives for bilateral cooperation was identified. Areas included in the package were: science and technology, trade and investment, technology transfer, narcotics control, agricultural education, parliamentary exchanges and collaboration in defence-related technology. The Ronald Reagan–Indira Gandhi Science and Technology Initiative was extended for another thee years beyond 1988.[113]

An indication of the improving climate in Indo–US relations was the number of high-level political and official exchanges which took place during the year 1988–89. From the US side, Defence Secretary Frank Carlucci, visited India in April 1988; Chief of the Army Staff, General Carl E. Vuono visited in October 1988; and Assistant Secretary of Defence, Richard L. Armitage and Assistant Secretary of State Richard W. Murphy visited in December 1988. Chairman of

[111] *Annual Report*, 1986–87, *op. cit.*, p. 1.
[112] *Annual Report*, 1988–89, *op. cit.*, p. 43.
[113] *Annual Report*, 1987–88, *op. cit.*, p. 41.

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the US House of representatives Sub-Committee on Asian and Pacific Affairs, Stephen Solarz and two other members of the Sub-Committee visited India in January 1989 and had wide-ranging discussions on regional and bilateral issues with the Prime Minister Shri Rajiv Gandhi, Minister of External Affairs Shri P. V. Narasimha Rao and the Foreign Secretary Shri K. P. S. Menon. They also visited Punjab.[114]

The CRAY XMP–14 Super Computer was received in India in October 1988 and has been installed at the National Centre for Medium Range Weather Forecasting (NCMRWF) on the premises of the Indian Meteorological Department in New Delhi. The Government of India has applied for an export licence for another Super-Computer—the CRAY YMP–132 for the Indian Institute of Science, Bangalore.

An important issue pursued during 1988–89 was the conclusion of a treaty on avoidance of double taxation. Most of the issues have been sorted out and it is expected that an agreement will be signed in 1989.[115]

USSR

India established diplomatic relations with the Soviet Union on April 13, 1947. Even before independence there was a substantial area of agreement between the Indian National Movement and the leadership in USSR. However, largely due to the atmosphere of cold war, there was a certain degree of reservation in the Soviet Union's attitude towards independent India. India's independent foreign policy and non-alignment were looked upon by the Soviet Bloc as "only a mask to cover collaboration with Anglo-American imperialism." However, the first five years of India's independence convinced the Soviet Union and her allies that India was keen to preserve her independence in international affairs. By 1953, the Soviet Union realised that India's non-alignment was a useful factor working not only in favour of peace but also helping in the elimination of foreign domination in Asia. Jawaharlal Nehru's visit to the USSR in 1955 and the return visit to India in 1956 of the Soviet leaders marked the turning point.

Mr. Khrushchev's Report to the 20th Party Congress of the CPSU, in which he praised the Asian countries which "resolutely uphold their right to an independent foreign policy" marked a new phase in the Soviet Union's attitude to India and the non-aligned group in general. Bilateral relations between India and the Soviet Union began to grow rapidly in various fields; trade and economic relations reached high levels. The Soviet Union showed an awareness of India's economic needs and contributed generously and unreservedly to the growth of heavy and basic industries in India.

The Soviet Union also displayed a marked understanding of the peculiarities of the sub-continental politics which were largely a legacy of the past colonial rule complicated by continuing intrigues and interferences by outside powers.

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[114] *Annual Report*, 1988–89, *op. cit.*, p. 42.
[115] *Ibid.*

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The Soviet Union and India have found several areas of common interest in the pursuit of their respective foreign policies and have cooperated in many areas. The fruitful and mutually beneficial cooperation between the two countries culminated eventually in the formal signing of a Treaty of Peace, Friendship and Cooperation in August 1971. This Treaty significantly acknowledges India's policy of non-alignment and endorses the principles of peaceful coexistence. It reaffirms the interest of the two countries in the maintenance of peace and the furtherance of international cooperation. Both India and the Soviet Union look upon the Treaty as a factor in favour of peace and stability in Asia and in the world as a whole.[116]

India's friendly and cordial relations with the Soviet Union have been developing satisfactorily. There has been a fruitful growth in the political, economic and cultural exchanges between the two countries.

In November 1986, the General Secretary of the CPSU Central Committee Mr. M. S. Gorbachev accompanied by a high powered delegation paid an official visit to India. Prime Minister Shri Rajiv Gandhi and Mr. Mikhail Gorbachev held extensive and cordial discussions on important bilateral, regional and international issues. Mr. Gorbachev called on the then President, Giani Zail Singh and addressed Members of the Indian Parliament. During the visit, Prime Minister Rajiv Gandhi and CPSU General Secretary Gorbachev signed the Delhi Declaration on Principles for a Nuclear Weapon Free and Non-violent World which embodies a comprehensive new framework for international relations based on freedom, equality, justice and non-violence. The other documents signed were an Agreement on Economic and Technical Cooperation, the largest to have been signed between the two countries so far, a Consular Convention, a Protocol on conducting the Festival of India in the USSR and the Festival of the USSR in India.[117]

While the Festival of India in the USSR was inaugurated during Prime Minister Shri Rajiv Gandhi's visit to the Soviet Union in July 1987, the Festival of the USSR in India was opened during the visit of Soviet Prime Minister Mr. N. I. Ryzhkov in November 1987. Both the Festivals lasted for a year.[118]

In the course of Prime Minister Shri Rajiv Gandhi's visit to the USSR, a Long-Term Programme of Cooperation in Science and Technology between India and the Soviet Union upto the year AD 2000 was signed by him and the General Secretary of CPSU, Mr. Mikhail Gorbachev. Wider in its scope than any previous agreement in cooperation in science and technology between the two countries, this programme envisages cooperation in frontier areas of technology, fundamental science and futuristic areas in science and technology.[119]

During the visit of the Soviet Prime Minister, Mr. N. I. Ryzhkov, to India in November 1987, an Economic and Technical Cooperation Agreement was

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[116] Kaul, *op. cit.*, pp. 37–39.
[117] *Annual Report*, 1986–87, *op. cit.*, pp. 34–35.
[118] *Annual Report*, 1987–88, *op. cit.*, p. 35.
[119] *Ibid.*

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signed between him and Prime Minister Shri Rajiv Gandhi. Under the agreement, the USSR has agreed to extend a credit of Roubles 770 million (Rs. 1,150 crore) for cooperation in the establishment of the Karnal Oil Refinery and its associate works as also a Thermal Power Station of 630 MW capacity. Agreements were also signed at ministerial levels for Development of New Forms of Economic Cooperation, Cooperation in Tourism, etc.[120]

In July 1988, President Shri R. Venkataraman paid a State visit to the USSR and had discussions on bilateral matters and international issues with the Soviet leadership. The President of the USSR, Mr. Mikhail Gorbachev visited India again in November 1988. Apart from extensive discussions with President Shri R. Venkataraman and Prime Minister Shri Rajiv Gandhi, he received the Indira Gandhi Prize for Peace, Disarmament and Development. On this occasion, five agreements were signed by Prime Minister Shri Rajiv Gandhi and the Soviet President Gorbachev. These were: an agreement on the construction of a nuclear power station in India, a framework agreement on the construction of hydro and thermal power stations with a capacity of 6,000 MW by AD 2000, an agreement on economic and technical credit for Vindhyachal Thermal Power Station II, an agreement on avoidance of double taxation and an agreement on cooperation in the field of outer space.[121]

Bilateral trade rapidly increased during the period 1988–89, to reach a level of Rs. 5200 crore in 1988. It was agreed that this accelerated growth in trade should be maintained in the coming years. The Trade Plan for 1989 has a target of Rs. 7,000 crore.[122]

Following the earthquake which devastated Armenia, relief supplies containing Arctic tents, blankets, woollens, hospital beds, stretchers and various categories of medicine and medical equipments, were airlifted to Armenia. A special fund called "Prime Minister's Armenia Earthquake Relief Fund" was opened to receive contributions from organisations and individuals. A National Relief Committee under the Chairmanship of the Minister of State for External Affairs, Shri K. Natwar Singh was set up to coordinate relief supplies from India.[123]

INDIA AND EUROPE — WEST AND EAST

UK

In the aftermath of independence, India's relations with the United Kingdom were a function of the colonial connection: though happily the maturity and statesmanship of India's leadership did not permit the past to fashion the future. India voluntarily chose to remain within the British Commonwealth

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[120] *Ibid*., p. 35.
[121] *Annual Report*, 1988–89, *op cit*., p. 37.
[122] *Ibid*.
[123] *Ibid*., p. 38.

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(known as Commonwealth of Nations thereafter) even after becoming a Republic, and thus overwhelmingly contributed to an altogether new orientation and dimension to the Commonwealth. Over the years, notwithstanding occasional irritants in the relationship, differences of opinion between the two countries have been kept in check through friendly and mature dialogue.

As regards economic relations, Britain has been an important trading partner of India and a source of foreign technology and investment in India. While India's trade turnover with the UK has increased over the years, the trade balance remained adverse to India. India's efforts of late to reduce this balance by encouraging the UK to buy more Indian goods, are showing some results.

In the recent past, the bilateral relationship has been severely buffeted by the UK Government not doing enough (even where it can, in accordance with the law) to curb anti-Indian activity in the UK. They have taken some steps against anti-Indian extremists, pro-Khalistani Sikhs and JKLF supporters who continue to be active there. India has been pursuing the matter with the UK Government in order to see that concrete steps are taken to put an end to such activities.

Our concerns in this regard have been expressed to the British authorities and their cooperation requested in curbing anti-Indian activities in and from the UK. Some limited progress in this regard has been achieved. Negotiations with the British Government have been in course since 1986 for the codification of effective legal arrangements.[124]

France

India's relations with France have continued to expand and develop and there have been wide contacts in the economic, cultural and scientific fields. There has been an increasing degree of similarity in the approaches of the two countries to key international issues. The conclusion of the nuclear fuel agreement with France for the supply of enriched uranium for the Tarapur atomic power plant marked the beginning of a new era of Indo–French cooperation.

Economic relations with France witnessed the consolidation of cooperation in various technological fields, particularly energy, power, coal and electronics. Between 1980 and 1981 some one score Indo-French Memoranda of Understanding on cooperation in various economic fields were signed.

The Festival of India, held in Paris in 1985, gave a new awareness to the people of France regarding India's rich cultural heritage and the potential of its economy.

The Festival of France was inaugurated in Bombay on February 3, 1989. This is the first return festival by a West European country. French President Francois Mitterand, who visited India during February 1–4, 1989 was present at the inauguration ceremony. President Mitterand's visit served to renew a

[124] *Annual Report*, 1987–88, *op. cit.*, p. 34.

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dialogue at the highest level between the two countries in an atmosphere of cordiality and mutual understanding.[125]

Federal Republic of Germany

Over the years, Indo–German relations have acquired a broad sweep. The thrust now is on trade and economic relations and on scientific and technological exchanges.[126] India was given the honour of being the partner country at the Hanover Trade Fair in 1984 and at the Frankfurt Book Fair in 1987. In 1988, the Federal Republic of Germany organised in India an exhibition entitled 'Techno-Germa'. It was a demonstration of the best and the latest in German Technology to prospective Indian partners. In 1989, India was accorded the status of the theme country in the Electronics Fair held at Hanover.[127]

The Prime Minister, Shri Rajiv Gandhi, visited the Federal Republic of Germany in June 1988. The last visit by the Indian Prime Minister to that country was in 1971. Apart from holding talks with Chancellor Kohl and other political leaders, the Prime Minister met and addressed a select group of top German industrialists, businessmen and leaders. The establishment of rapport at the highest political level between the two countries, the decision to maintain a political dialogue on a regular basis and stimulating the interest of the German business community in India were some of the positive results of the visit.[128]

Commonwealth

India has played a key role in the Commonwealth. It was in recognition of India's role in the Commonwealth as well as in world affairs that a meeting of the Commonwealth Heads of Government was held, for the first time, in New Delhi from November 23 to 29, 1983. The Summit brought together 42 countries from five continents representing a cross-section of humanity from the developed as well as the developing countries, and provided them an opportunity for taking stock of the world political and economic situation. It was a matter of satisfaction that despite the divergent views and perceptions inescapable in such a large and varied grouping as the Commonwealth, the final documents issued by the Summit brought out the essential unity of approach and purpose in matters connected with peace and development.

India was in the forefront of the Commonwealth activities aimed at the implementation of the decisions taken at the Vancouver Summit of the Commonwealth in 1987. As a member of the Commonwealth Committee of Foreign Ministers in Southern Africa which was set up by the Vancouver

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[125] *Annual Report*, 1988–89, *op. cit.*, p. 35.

[126] Prime Minister Shri Rajiv Gandhi's Luncheon Speech at Bonn, *Foreign Affairs Record*, Vol. XXXIV, No. 6, June 1988, pp. 166–167.

[127] Prime Minister Shri Rajiv Gandhi's address to West German Business Leaders and Foreign Policy Experts, *Foreign Affairs Record*, Vol. XXXIV, No. 6, June 1988, p. 169.

[128] Government of India, Ministry of External Affairs, *Annual Report*, 1988–89, p. 33.

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Summit with a view to following up the recommendations of the Summit relating to Southern Africa, India contributed positively to the Committee's deliberations on sanctions against South Africa.

The four main areas of activity of the Committee pertain to the widening and strengthening of sanctions against South Africa, the special needs of the Frontline States, the need to reach out to all sections of anti-*apartheid* opinion within South Africa and the issues relating to Namibia.[129]

East Europe

India's relations with East European countries have shown a remarkable growth in recent years, especially in the economic, cultural and political fields.

In order to further strengthen relations with these countries, the then Vice-President, Shri R. Venkataraman, paid official visits to Bulgaria, German Democratic Republic and Yugoslavia in November 1985. He discussed bilateral relations and issues of world politics with the leaders of these countries. The President of India, Giani Zail Singh paid visits to Poland and Yugoslavia in October-November 1986.[130]

During 1988–89, the notable visits to East Europe were the visit of President Shri R. Venkataraman to Czechoslovakia in September and that of the Prime Minister to Hungary and Yugoslavia in June and July, respectively. These occasions were utilised by the Indian leaders to hold fruitful discussions with their counterparts.

Important discussions and review of economic, trade, scientific and technical cooperation took place during the meetings of the Indo–Romanian Joint Commission in Bucharest, and the Indo–Polish, the Indo–Hungarian, and the Indo–Bulgarian Joint Commissions in New Delhi.

A new dimension was added to the cultural cooperation between India and Bulgaria with the holding of the "Days of Indian Culture in Bulgaria" in June, and the "Days of Bulgarian Culture in India" in January 1989. Both the festivals evoked widespread enthusiasm in the respective countries.

With the GDR, India signed the Cultural Exchange Programme for the years 1988 and 1989. A similar exchange programme in the field of scientific and technical cooperation was also signed.[131]

INDIA AND THE UNITED NATIONS

India was one of the signatories to the Declaration by United Nations at Washington, D.C., on January 1, 1942, and became one of the Charter members of the United Nations when the Charter was adopted on October 24, 1945.

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[129] *Annual Report*, 1988–89, *op. cit.*, p. 65.

[130] *India 1983—A Reference Annual*, *op. cit.*, p. 471; *Annual Report*, 1983–84, p. 24, and *Annual Report*, 1985–86, *op. cit.*, p. (ix).

[131] *Annual Report*, 1988–89, *op. cit.*, p. xv.

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Setting out the policy of the Government of India towards the United Nations, Jawaharlal Nehru, then Member for External Affairs in the Governor General's Executive Council, declared:

> Towards the United Nations, India's attitude is that of wholehearted cooperation and unreserved adherence, in both spirit and letter, to the Charter governing it. To that end, India will participate fully in its various activities and endeavour to play that role in its councils to which her geographical position, population and contribution towards peaceful progress entitle her.

This unreserved adherence to the concept of United Nations stemmed from the belief that the United Nations Organisation (UNO) was the beginning of some kind of world structure, which would eventually lead to a new world order.[132]

At that time, with her own independence clearly assured, India looked upon the UNO not as an organisation which might be used to preserve the status quo but as one which could be used to enlarge the areas of freedom, peace and prosperity through international cooperation. These were, indeed, the basic objectives of independent India's foreign policy and she strove to further these objectives in and outside the UNO. Having a vital stake in the preservation of peace, she turned her endeavours towards preventing the United Nations falling a victim to the Big Power rivalry which, even then, threatened to split the world permanently into two hostile camps. By her conduct and example, steering clear of Great Power alignments and blocs, India strove to create a third area, outside the two major power blocs, and widened it in the interests of peace.

Colonialism and Racialism

In conformity with her basic policy of promoting liberation of subject peoples, India played a leading and active role in the United Nations from its early years in opposing the continuance of colonialism in different parts of the world. She had been consistent, resourceful and imaginative in using the United Nations for the advancement of colonial peoples towards independence. As far as practicable, she advocated and strove for peaceful transition to independence of subject countries. In the case of Indonesia, she called upon the United Nations to take steps leading to the early independence of that country to avoid recrudescence of bloodshed. She advocated early independence for the Italian colonies in North and East Africa. In the case of Morocco and Tunisia, she endeavoured to secure a peaceful termination of French rule. She recognised, in Algeria, the special factors and complexities while regretting the bloodshed which actually preceded independence. Elsewhere, India tried to use the machinery provided in the UNO to hasten the progress of colonies towards freedom.[133]

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[132] Kaul, *op. cit.*, p. 6.
[133] *Ibid.*, pp. 6–8; and *Foreign Affairs Record*, September 1985, p. 288.

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In October 1985, during the 40th session of the General Assembly of the UNO in a series of decisions on decolonisation issues, the Assembly called for renewed efforts to complete the implementation of its 1960 'Declaration on the Granting of Independence to Colonial Countries and Peoples'; strongly condemned South Africa's continued illegal occupation of Namibia and called for an end to collaboration with South Africa and reiterated its calls for the cessation of foreign economic and military activities that hinder the decolonisation process. In addition to the two main resolutions under this agenda item, one relating to the implementation of the 1960 Declaration and other on "Dissemination of Information on Decolonisation", both of which were co-sponsored by India, the Assembly also adopted a third resolution on the 25th anniversary of the Declaration.[134]

On the allied question of racial discrimination India herself had brought up before the UN General Assembly in 1946 the matter of the treatment of people of Indian origin in South Africa. In 1952, India, along with 12 other Member States of the United Nations, raised the general question of 'race conflict' in South Africa resulting from the policies of *apartheid* of the Government of South Africa. In the face of South Africa's indifference to world public opinion and defiance of the world body's numerous resolutions on the subject, India cosponsored with 33 other countries a Resolution in 1962 which called upon Member States to take certain diplomatic and economic steps against the South African Government to bring about the abandonment of its racial policies.[135]

India's consistent policy of firm opposition to *apartheid*, condemnation of the racist regime and its aggressive postures against the Frontline States in Southern Africa, and support to the liberation movements found forceful reiteration on several occasions at various international fore. India rejected in no uncertain terms the racist regime's vicious scheme of consolidating *apartheid* by extending insignificant concessions to the Indian and coloured communities while leaving the majority African community out of the picture.[136]

Reduction of Tension

It was in the realm of reducing cold-war tension and promoting peace that India's policy of non-alignment paid rich dividends. In Korea, Indo–China and West Asia, India repeatedly played an effective role and helped resolve the crisis in an atmosphere free of bloc rivalries.

India remained committed to resolving the problems related to Afghanistan through a negotiated political settlement and supported the UN Secretary-General's efforts aimed at bringing about a comprehensive settlement of issues affecting the Afghan situation.[137]

India played a significant role in many of the peace keeping operations of the

[134] *Annual Report*, 1985–86, *op. cit.*, p. 44.
[135] Kaul, *op. cit.*, p. 8.
[136] *Annual Report*, 1983–84, *op. cit.*, p. (iv).
[137] *Ibid.*, 1983–84, *op. cit.*, p. 3.

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United Nations. India supervised the repatriation of prisoners-of-war in Korea. She supplied the largest contingent for the UN Emergency Force (UNEF) in Gaza. The first two commanders of the UN Forces in Cyprus (UNFCYP) were Indians. In the UN operations in Congo (UNOC) India shouldered the heavy responsibility of sending the largest national unit, which helped in bringing the crisis in Katanga to an end.

Disarmament

Not only in actual threats to peace but also in potential sources of tension, India's role has been significant. Disarmament was an area which India considered important for making the world secure from the threat of war. In the early stages of the discussions on disarmament, little progress could be made because they were essentially debates between the two sides in the cold-war with minimal participation by those outside. From the eighth session of the General Assembly (1953) onward, India and like-minded nations began to play an increasingly effective role in these talks. Prime Minister, Shri Jawaharlal Nehru, drew the attention of the world to the nuclear menace by calling for the banning of nuclear tests.[138]

India has consistently tried to promote the development of nuclear energy for peaceful purposes and advocates the total elimination of nuclear weapons.

During 1988 India played a leading role in the three main multilateral disarmament fora, viz., the Conference on Disarmament in Geneva, the UN Disarmament Commission and the First Committee of the UN General Assembly. At the Third Special Session of the General Assembly devoted to Disarmament held in June 1988, the Indian delegation led by the Prime Minister put forward a number of new proposals including a far-reaching Action Plan for ushering in a Nuclear Weapon Free and Non-Violent World Order. The initiatives taken by India arose out of the deeply held conviction that global nuclear disarmament was necessary for the very survival of mankind. India has consistently maintained that the arms race, in particular the nuclear arms race, can finally end only when the doctrine of deterrence and the balance of terror that goes with it are given up. Only then will it be possible to work towards freeing this world from nuclear weapons.

The Action Plan contains a package of measures that structurally link the entire range of issues presently on the world disarmament agenda. The Plan calls upon the international community to negotiate a binding commitment to general and complete disarmament—a commitment which should be total and without reservation. The most essential feature of the Action Plan is the achievement of the objective of elimination of nuclear weapons by the year 2010 at the latest.

The Action Plan is based on the premise that the process of disarmament could not be confined to the USA and the USSR. There should be a binding

[138] Kaul, *op. cit.*, pp. 9–11.

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commitment by all nations to eliminate nuclear weapons. All nuclear weapon States must join the process without delay. Those States which are capable of crossing the nuclear threshold should also assume corresponding obligations for doing so. India specifically proposed that negotiations must commence immediately for a new Treaty to replace the NPT which lapses in 1995 unless it is extended. This new Treaty should give legal effect to the binding commitment by the entire international community to eliminate all nuclear weapons by the year 2010. In addition, two other initiatives were proposed by India relating to "New Technologies and the Qualitative Arms Race" and "Disarmament of the Warheads of Nuclear Missiles covered by the INF Treaty between the USA and the USSR."[139]

India believes that the evolution of the healthy national societies in the world can only be ensured if the pervasive influence of an armaments culture, particularly of a nuclear armaments culture, is curbed and the massive expenditure now being directed towards perfecting and modernising the instruments of war is channelled towards securing more equitable and better conditions of livelihood for the peoples of the world. Even a token reduction in arms expenditure could produce dramatic results if channelised into the development of the less affluent sections of the world.[140]

International Cooperation

India has always worked for international cooperation for the betterment of the world. But the vestiges of colonialism on the one hand and the rivalries of the cold-war on the other vitiated the atmosphere for genuine international co-operation for the harmonious development of the world community.

To keep cooperation towards development out of the bloc conflicts, India urged as early as 1950 that assistance to developing countries should be channelised through international agencies. The concept of a Special Development Fund took definite form, through the efforts of India and other developing countries, in 1952. A United Nations capital loan fund has also been one of India's suggestions to keep aid outside political manipulation.

Besides aid, trade and more equitable terms for the developing countries have been emphasised by India and like-minded countries as an important means to ensure a more harmonious development of the world community. India had made a significant contribution to the concept of a UN Conference on Trade and Development (UNCTAD).[141]

India continued to play a significant role in fostering greater cooperation among the less developed countries themselves and in presenting common positions on international economic issues in the UN and other organisations. She was an active participant in the Extraordinary Ministerial Conference on South-South Cooperation in Pyongyang in June 1987. This meeting reviewed

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[139] *Annual Report*, 1988–89, *op. cit.*, pp. 51–53.
[140] *Foreign Affairs Record*, September 1985, *op. cit.*, p. 285.
[141] Kaul, *op. cit.*, pp. 11–12.

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the implementation of the existing programmes and ways to further such cooperation. At the forty-second session of the UN General Assembly, the developing non-aligned countries took a common stand on important issues like external debt. While a consensus of the General Assembly on the issue could not be achieved, it was possible to secure consensus on the important issue of environment which was facilitated by the efforts of the Indian delegation.

In a climate in which the major developed countries paid less heed to serious international negotiations in the UN on international economic problems, particularly on an issue like debt relief, India's main effort was to sustain the fundamental positions already achieved while working for progress in new areas. As in the past, India actively supported all initiatives for enhancing cooperation among the developing countries and participated in the Sixth Ministerial Meeting of the Group of 77 in Havana in April 1987.[142]

Faith in the UN

Through the active and cooperative association with the UN for about four decades, India had demonstrated her faith in that body as a potential instrument for building a peaceful and harmonious world community. India firmly believes that the UN is the only hope for mankind and that it ought to be strengthened.

The role of the UN during the year 1988–89 in contributing to the resolution of conflicts has been warmly welcomed by India. These included the Geneva Accords on Afghanistan, the ceasefire in the Iran-Iraq war and the Namibian and Angolan accords. On the Palestinian issue, the stage has been set for the UN to play a constructive role. India continued to maintain that an International Peace Conference on the Middle-East was necessary.[143]

INDIA AND THE NON-ALIGNED MOVEMENT

As stated earlier, India, ever since her independence, has consistently followed in her foreign relations a policy of non-alignment with the opposing power blocs. Such a policy flows naturally from India's past traditions and has been fully in keeping with the interests of the people of India. It is an assertion of the country's national sovereignty and independence. It is not an end in itself but a means to an end—the lessening of tensions in the world and the preservation of world peace so that India and other under-developed countries which have regained their freedom are able to devote their energy and resources towards their economic and social betterment.

The essence of non-alignment lies in the freedom and independence of each country to judge every question on its merits and not on the basis of a predetermined attitude arising out of alignment with other countries. Non-alignment implies an attitude of impartiality based on larger world interests

[142] *Annual Report*, 1987–88, *op. cit.*, pp. xii–xiii.
[143] *Annual Report*, 1988–89, *op. cit.*, p. xviii.

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rather than on the narrow and limited interests of one power or group of powers. Despite its detractors, the policy and practice of non-alignment has steadily developed into a major factor in international affairs, with the emergence of a large number of countries of Asia and Africa into independence.[144]

The path of non-alignment, however, does not imply neutrality; it essentially means that India will not align itself with any military bloc but would seek to defuse international tensions by independence of judgement.

The Non-Aligned Movement, which was launched in 1961 under the leadership of world figures like President Tito, President Nasser, President Soekarno and Prime Minister Nehru, caught the imagination of newly independent countries. Its membership swelled from 25 at the Belgrade Conference in 1961 to 101 in the New Delhi Non-Aligned Summit in 1983. Despite the enlargement of its membership, the Non-Aligned Movement has retained its basic thrust in favour of peace, disarmament, development and independence. The need for unity among non-aligned nations and the solidarity of the Movement has found wide acceptance and recognition.

In recent years India sustained her efforts to create consensus within the Non-Aligned Movement on major international issues and worked closely with the other non-aligned countries. She also emphasised the need for the Movement to play an increasingly active role on global economic issues, particularly those concerning the developing countries. She participated in the Extraordinary Ministerial Meeting of the Coordinating Bureau of the Non-Aligned Countries on Latin America and the Caribbean in Georgetown in March 1987 and the Ministerial Meeting of the NAM Committee of Nine on Palestine at Harare in April 1987, both at the level of the Minister for External Affairs. India expressed her solidarity with and support for the Contadora process by participating in a delegation of the NAM Committee on Central America, to Managua and Caracas in August 1987.[145]

During 1988–89 India was active in NAM in creating a better international climate and contributed to the resolution of some of the regional conflicts, particularly the Kampuchean problem. The coordinating Bureau of NAM at its meeting in New York in October 1988 condemned the inhuman Israeli practices in the occupied Arab territories and supported the Palestinian cause. The movement continued to monitor developments regarding the independence of Namibia.[146]

NAM under India's Chairmanship

India was called to the Chairmanship of the Non-Aligned Movement at a particularly difficult time. International tensions were on the increase as the world realised it was on the verge of a new stage in the nuclear arms race. The major nuclear weapon states were unable to open a dialogue that could mitigate the

[144] *India 1983—A Reference Annual*, *op. cit.*, p. 465.
[145] *Annual Report*, 1987–88, *op. cit.*, p. xii.
[146] *Annual Report*, 1988–89, *op. cit.*, p. xviii.

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nuclear danger to the world. At the same time the harsh realities of political and economic power were being thrust at the non-aligned and developing countries. There was a hardening of positions which made the possibility of solutions in troubled areas such as Southern Africa, the Middle East and Central America even more remote. The international dialogue on economic issues was badly stalled. Attempts were made to question the relevance of non-alignment itself and to weaken the cohesion of the Movement by consciously promoting bloc-oriented divisions.

It cannot be claimed that the Non-Aligned Movement during India's leadership has been able to bring an end to these dangerous problems. However, this has been a period of affirmation of the continued significance of NAM, its capacity to play a part on the world stage and its ability to present forcefully the views and wishes of the major part of mankind which it represents.[147]

India's approach to the Chairmanship of NAM—under the direction of the late Smt. Indira Gandhi and then under the leadership of Shri Rajiv Gandhi—has been to develop constant interaction with different view-points within the Movement with a view to evolving a consensus which is not necessarily pre-determined. This approach is complex, unpredictable in terms of outcome and involves sophistication in approaching issues. It involves an inclusive rather than exclusive approach with regard to consultations and stresses prior discussion and negotiation on contentious issues with the proponents of differing opinions in order to identify and work towards a resolution of differences.

The stress has been on bridge-building. This does not, of course, rule out the possibility of independent initiatives where these can be seen furthering the overall goals of the Non-Aligned Movement. It also does not conceive of the Movement as a closed club without stimulus from or intellectual contact with individuals and organisations outside the NAM community of nations.[148]

India's term of Chairmanship of NAM was completed with Mr. Robert Mugabe, the Prime Minister of Zimbabwe, taking over as NAM Chairman from the Prime Minister, Shri Rajiv Gandhi, on the very first day of the Eighth Non-Aligned Summit which was held at Harare from September 1 to 7, 1986.[149]

The Summit set up an 'AFRICA (Action for Resisting Invasion, Colonialism and Apartheid) Fund' with India as Chairman to aid the Frontline States and freedom movements in South Africa and Namibia.[150]

India had, at the AFRICA Fund Summit of January 1987, announced a contribution of Rs. 50 crore spread over a period of three years. For this, several projects have been selected. Out of the identified projects, material supplies have been arranged for the ANC, about 300 vehicles have been delivered to Tanzania and a consignment of medical equipment has reached Botswana. Angola has received medicines from India under the AFRICA Fund

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[147] *Non-aligned Movement during India's Chairmanship, op. cit.*, pp. 1–2.
[148] *Ibid.*, pp. 12–13.
[149] *Hindustan Times*, New Delhi, September 8, 1986.
[150] M. P. Chronicle, Bhopal, September 8, 1986.

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and some Angolan students are receiving higher education in Indian universities. Zimbabwe has received a supply of tarpaulins, transport vehicles, ambulances, x-ray machines and an electric generator have been sent to SWAPO. One hundred railway wagons for delivery to Zambia are being manufactured. Software for the Mozambican Railway Protection Force and consumer durables to Mozambique are expected to reach Mozambique by March/April 1989. By the end of the financial year 1988–89, about 50 per cent of the total Indian contributions are expected to be utilised or firmly committed. Negotiations are under way with suppliers such as STC, PEC, TATAs, Mohan exports, MECON, HSCC and NSIC for the remaining projects. Agreements on the implementation of Indian AFRICA Fund projects have been signed with Botswana, Tanzania, Angola and Mozambique. Agreements with Zimbabwe are being worked out.[151]

Even after handing over the Chairmanship of the Non-Aligned Movement to Zimbabwe, the Indian role and activity in the Movement has remained at a high pitch. India worked closely with the other member countries to create a consensus within the Movement on major international issues. India also emphasised that the Movement should plan an important and increasingly active role on global economic issues, particularly those concerning the developing countries. India participated in various meetings organised by NAM.[152]

INDIA AND DISARMAMENT

The greatest peril facing the world today is the threat to the survival of mankind from a nuclear war. Disarmament, in particular nuclear disarmament, is no longer merely a moral issue; it is an issue of human survival. Yet the renewed escalation in the nuclear arms race, both in its quantitative and qualitative dimensions, as well as reliance on doctrines of nuclear deterrence, have heightened the risk of the outbreak of nuclear war and led to greater insecurity and instability in international relations. Nuclear weapons are more than weapons of war. They are instruments of mass annihilation. India and other non-aligned countries, therefore, find it unacceptable that the security of all States and the very survival of mankind should be held hostage to the security interests of a handful of nuclear weapon States. Measures for the prevention of nuclear war and of nuclear disarmament must take into account the security interests of nuclear weapon and non-nuclear weapons States alike and ensure that the survival of mankind is not endangered.[153]

Disarmament and promotion of world peace are among the basic objectives of India's foreign policy. India has consistently urged that the only effective

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[151] *Annual Report*, 1988–89, p. 30.
[152] *Annual Report*, 1988–89, *op. cit.*, pp. 59–60.
[153] Final Documents, Seventh Conference of Heads of State or Government of Non-aligned Countries, New Delhi, 1983, p. 8.

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guarantee against the use, threat of use or accidental use of nuclear weapons is the total elimination of nuclear weapons. India believes that all States possessing nuclear weapons should give a binding commitment not to use them under any circumstances.

Nuclear Non-Proliferation Treaty

While India advocates the total elimination of nuclear weapons and is firmly committed to the peaceful utilisation of nuclear energy, she cannot accept discriminatory and unequal international agreements like the Nuclear Non-Proliferation Treaty. India was the first country that brought the danger of the proliferation of nuclear weapons to the attention of the United Nations in 1964 by inscribing an item entitled 'Non-Proliferation of Nuclear Weapons'. India's proposal was based on the premise that both horizontal and vertical proliferation of nuclear weapons were integral parts of the problem, which had to be dealt with as a whole. Unfortunately, this concept was deliberately altered in the Non-Proliferation Treaty concluded in 1968. India also finds the cartel type arrangements and discriminatory constraints sought to be imposed on the peaceful development of nuclear power by non-nuclear weapon States totally unacceptable.[154]

India's Five-point Programme of Action

In her message to the Second Special Session on Disarmament of the UN General Assembly, the late Prime Minister, Smt. Indira Gandhi, proposed the following concrete programme of action:

(i) The Session should negotiate a binding convention on the non-use of nuclear weapons;
(ii) As a first step towards the eventual cutting on existing stockpiles, there must be a freeze on nuclear weapons, providing for the total stoppage of any further production of nuclear weapons, combined with a cut-off in the production of fissionable material for weapons purposes;
(iii) Immediate suspension of all nuclear weapons tests;
(iv) Towards this objective, disarmament negotiations must once again revert to the task of achieving a Treaty on General and Complete Disarmament within an agreed time-frame as was discussed between the USA and the USSR in the Agreed Principles and Draft Treaties of the early sixties. Although the problems involved have become far more complex, the basic approach and the principles then formulated could still provide a basis for meaningful negotiations; and
(v) The United Nations and its Specialised Agencies should take the lead in educating the public on the dangers of nuclear war, on the harmful

[154] Article on "India's Foreign Policy", *op. cit.*, pp. 2–3.

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effect of the arms race on the world economy, as well as the positive aspects of disarmament and its link with development.[155]

Six-nation Peace Initiative

India is of the view that a concerted world-wide effort must be made to halt the arms race and its dangerous extension to outer space. With this view, the late Prime Minister, Smt. Indira Gandhi, together with the Heads of Government or State of Argentina, Greece, Mexico, Sweden and Tanzania, launched on May 22, 1984, a major peace initiative. This five-continent initiative, *inter alia*, stated:

> As leaders of nations, member-states of the United Nations, we have a commitment to take constructive action towards halting and reversing the nuclear arms race. The people we represent are no less threatened by nuclear war than the citizens of the nuclear weapon states. It is primarily the responsibility of the nuclear weapon States to prevent a nuclear catastrophe but this problem is too important to be left to these states alone.

The joint statement called on the nuclear weapon States to halt the testing, production and deployment of nuclear weapons and their delivery systems to be followed by a programme of arms reduction, leading to general and complete disarmament. It also urged measures to strengthen the United Nations system and to ensure urgently needed transfer of substantial resources from the arms race to social and economic development.

This appeal, which represented a significant step in mobilising world public opinion in favour of disarmament, evolved strong support in the international community at large. The leaders of these six countries again met in New Delhi in January 1985 to consider ways to further their efforts. The Delhi Declaration adopted on January 28, 1985 reaffirmed the appeal of May 1984. It further called for urgent steps to prevent an arms race in outer space and for a comprehensive treaty prohibiting the testing of nuclear weapons.

In October 1985, the six leaders again appealed to the USA and the USSR to declare a moratorium on nuclear testing for a period of twelve months and offered their good offices to facilitate verification of such a moratorium.[156]

A Summit meeting of the six leaders was held at Ixtapa, in Mexico on August 6–7, 1986. The Prime Minister, Shri Rajiv Gandhi, informed Lok Sabha on August 14, 1986 that the Mexico Declaration expressed deep concern at the lack of progress in nuclear disarmament since the New Delhi Declaration of January 1985. The Declaration emphasised the crucial importance of immediate suspension of nuclear tests, followed by negotiations leading to a Comprehensive Test Ban Treaty. A separate document containing a concrete offer for verifying the suspension of nuclear tests by the United States and the Soviet

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[155] P. V. Narasimha Rao, Address at the SSOD-II of UN General Assembly, June 11, 1982, pp. 12–13.

[156] *Annual Report*, 1984–85, *op. cit.*, pp. (iii–iv); and Article on "India's Foreign Policy", *op. cit.*, p. 4.

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Union was presented at the Summit. Also, a joint letter was addressed to President Reagan and General Secretary Gorbachev proposing that experts from the Six Nations meet with their Soviet and American counterparts to discuss the offer for facilitating a test ban verification.[157]

Disarmament and Development

India is deeply concerned about the persistence of economic distress among large sections of mankind and the widening gap between the developed and developing countries. Keeping this in view, India drew attention in various international fora to the close link between disarmament and development. It was pointed out that significant reductions in the wasteful global military expenditure, which is rapidly approaching the staggering figure of US $1000 billion a year, by a handful of industrialised countries alone, will not only help ease tensions the world over but also contribute to recovery and growth in the world economy. This could be used to augment the currently decreasing levels of assistance to developing nations. India has repeatedly emphasised at various international fora that the proposals for a Conference on Disarmament and Development should be taken up seriously.

The UN Conference on Disarmament and Development was held in New York from August 24 to September 11, 1987. India was elected President of the Conference by acclamation. Earlier, India had been elected Chairman of the forty-four member Preparatory Committee for the Conference. The success of the Conference was in no small measure due to the efforts of the Indian delegation to the Preparatory Committee as well as the delegation to the main Conference. Although the USA did not attend the Conference, the Western allies of the US attended and displayed a positive attitude towards the relationship between Disarmament and Development. The Conference, where the relationship between Disarmament and Development was discussed for the first time at a political level inter-governmentally, was a historic one and was able to adopt the Final Document by consensus.[158]

During 1988 India was active in the Conference on Disarmament in Geneva, the UN Disarmament Commission and the first Committee of the UN General Assembly to plead for early steps so that arms race could be halted and resources thus saved be channelised for developmental purposes. Prime Minister Shri Rajiv Gandhi also presented in June 1988 a far-reaching Action Plan for ushering in a nuclear-weapon free and Non-Violent World Order in the Third Special Session of the UN General Assembly devoted to Disarmament. The details of the plan have been discussed in the chapter on "India and United Nations".

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[157] L. S. Deb., August 14, 1986.
[158] *Annual Report*, 1987–88, *op. cit.*, p. 53.

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Indian Ocean as a Zone of Peace

India has viewed with disquiet the continuing augmentation of the military presence of the great powers in the Indian Ocean and she has continued to work bilaterally and with the other Non-aligned States to counter this trend. India hopes that the littoral states would not align themselves with the great powers or offer facilities which would invite countervailing reaction. India is deeply concerned that despite the 1971 UN Declaration which seeks to transform the Indian Ocean into a Zone of Peace, Great Power rivalry in the region has been intensified by attempts to involve littoral and hinterland states in strategic configurations involving outside powers and by the development of new command structures which engender a further arms build-up and provide an interventionist capability of external forces.[159]

INDIA AND THE NEW WORLD ECONOMIC ORDER

India has consistently worked for a reduction of economic disparity among nations as a means towards the establishment of peace in the world. India has continued to strive towards global negotiations for the amelioration of the steadily deteriorating state of the world economy. In view of the continuous deteriorating economic and social conditions in the developing countries which have been suffering from a steady decline in commodity prices, and adverse balance of trade, intensification of protectionist measures on the part of the developed countries, excessive debt burden and a decline in the flow of finance which have caused unprecedented balance of payment problems for the developing countries, India has been consistently advocating a restructuring of the International Financial and Monetary Institutions, and a North-South dialogue for devising effective means to tackle these problems. Simultaneously India has also called for a South-South dialogue to strengthen collective self-reliance among the developing nations.

In her keynote address to the Seventh Non-Aligned Summit held in New Delhi in March 1983, the late Prime Minister, Smt. Indira Gandhi, gave a call for an International Conference on Money and Finance with a view to the restructuring of the world economic system as a first step towards the establishment of a New International Economic Order.[160]

India is determined to continue its efforts to bring about a constructive dialogue between the developed and developing countries in their quest for a cooperative approach towards a New International Economic Order.[161]

While both developed and developing countries have faced considerable hardships, the real burden has been borne by the latter. The developing countries have been badly hit by the decreasing global liquidity, hardening

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[159] *Annual Report*, 1985–86, *op. cit.*, pp. (v–vi).
[160] *India 1984—A Reference Annual*, *op. cit.*, pp. 492–93.
[161] Article on "India's Foreign Policy", *op. cit.*, p. 6.

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conditionality of the international financial institutions, etc. India, with other non-aligned countries, sought in a number of ways to reverse this trend and to strengthen international economic cooperation, though with little success. The Bonn Conference of developed countries, while paying lip-service to North-South interdependence, took no concrete steps which could be of any help to the developing countries. In view of the inadequate response to the developed countries, it was only right that increasing attention was paid to greater cooperation among the developing countries themselves, both among the Group of 77 and the Non-Aligned Movement.

Economic and Technical Cooperation

India's keenness to promote cooperation with countries in Asia and Africa found expression in bilateral schemes of assistance under the Indian Technical and Economic Cooperation (ITEC) Programme. This programme supplements multilateral schemes such as the Colombo Plan and the Special Commonwealth African Assistance Plan.

India's commitment to foster cooperation among the developing countries was reflected, *inter alia*, in the enhanced bilateral exchange programmes with the developing countries of Asia, Africa and Latin America, under the Indian Technical and Economic Cooperation Programme (ITEC). The monetary value of this assistance now stands at over Rs. 12 crore, starting from a modest outlay of Rs. 4.61 crore in 1964. India's economic and technical assistance, for instance, to the Indo–China states was channelled through ITEC. In Afghanistan, the ITEC programme covered fields such as public health, small-scale industry and education.[162]

[162] *Annual Report*, 1987–88, *op. cit.*, p. xiii.

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6

NATIONAL FOREST POLICY

INTRODUCTION

With the creation of the Universe, it is believed, first there was water, slowly land developed. With land and earth coming up, the first to enter were trees and vegetation. Forests are the nature's gift to mankind. Man is dependent on trees to a much greater extent than he realises or is willing to admit. Gautama Buddha, centuries ago, stated:

> The forest is a peculiar organism of unlimited kindness and benevolence that makes no demands for its sustenance and extends generously the products of its life activity; it affords protection to all beings, offering shade even to axe man who destroys it.[1]

Trees are amongst man's most reliable friends. They look extremely cool in the heat and their shade is also essential for mankind. Few sites are more beautiful than trees whether in flower or with their branches laden with fruit.

Forests are of multifarious uses and as such are considered to be of immense help to human beings. They moderate the climate, maintain soil mantle and regulate water supplies. By their photosynthetic activity, the plants take carbon dioxide from the atmosphere and release oxygen thus purifying the air and also convert solar energy into various forms of energy such as fuel, food, oil and oil products, which can be directly used by human beings. Forests have a great potential to control rainfall and contribute largely towards moderation of flow of water in the catchment areas. They also offer protection to soil against erosion by wind and water.

The forests along with providing recreational needs of the human beings also absorb noise and thus help in noise abatement. In urban areas and big cities monotony in the jungle of cement buildings of residential houses, commercial offices and industrial installations is effectively broken by trees and plants.

The ecological usefulness of forests is most readily observed in their beneficial effect on water catchment areas, where they have a regulatory influence on stream flows and where they protect soils from erosion and prevent silting of dams and canals. Forests also play a significant role in economic development. In addition to their important influence on the environment, they provide innumerable products of vital use to man. Forest products are extensively used in most societies; they provide food, fuel, fibre, building materials, and industrial products such as gums, resins, oils, transmission poles, newsprint and

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[1] Prabir Thakur: *Forestry in India—its Conservation and Planning* (*Indian and Foreign Review*, Vol. 21, No. 19, July 31, 1984), p. 25.

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other papers, packaging materials, textiles and clothing. Almost every modern industry is, to some extent, dependent on forest products in one or more of its processes.[2]

Forest resources all over the world are subjected increasingly to two kinds of phenomenon—deforestation and degradation. While deforestation is a change of land use from forestry to non-forestry uses, degradation is conversion of good forest cover into secondary bush finally leading to desertification. Both processes seriously threaten the life-supporting capacity of forest resources and endanger environmental stability, on which depends sustained food production.[3]

An International Prospective of Deforestation

The unwarranted felling of trees leads to drastic changes in animal life and ecological imbalance.

The United Nations Food and Agriculture Organisation estimates that half the world's forests have disappeared since 1950. It says that Latin America has lost 37 per cent of its tropical forests, Central America 66 per cent, South-East Asia 38 per cent and Central Africa 52 per cent.[4]

Trees are being felled at such a rate that Cultural Survival, an organisation of social scientists, predicts that if present trends continue, by the year 2000 only two giant forests will remain; one in Western Braszil, the other in Central Africa. Some biologists think it more accurate to say that by the turn of the century there will be hardly any undisturbed forest left.

All the trees are not felled for firewood. Poor countries, hungry for foreign exchange, export tropical hardwoods to the industrialised West. The FAO reports that exports of tropical hardwoods went up nearly 15-fold between 1950 and 1980.

Dr. Peter Reven, Director of the Mussouri Botanical Garden and a world authority on ecology of rain forests points out that unprecedented growth of world population is seriously responsible for the present rate of deforestation in the world. The population overload most graphically is represented in the world's tropical forest regions, where as much as 52 per cent of the world's population is settled. The percentage is expected to rise to 60 per cent by the year 1000. About 2.4 billion people, one-third of them living in absolute poverty, inhabit these tropical regions. Dr. Reven says demographic is a critical factor in the deforestation equation: "If there are too many people in a given area", he says, "forests cannot recover". The world's shrinking of forests over the years is given in Table 6.1.[5]

According to the latest estimates of the UN experts, forest cover of the globe is decreasing rather fast as a result of economic activities of man—the tropical green belt loses 7.5 million hectares annually. At the dawn of the scientific and

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[2] World Bank: *Forestry-Sector Policy Paper*, (N. W. Washington, 1978), p. 5.
[3] G. Sudhakar Nair: *Forest Fire Control* (*Financial Express*, New Delhi, April 30, 1984).
[4] *Deforestation Daunting* (*The Hindu*, Madras, March 2, 1984).
[5] *Ibid.*.

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TABLE 6.1
Shrinking of Forests

Years	*Estimated forested area in million of acres*	
	*Developed world**	*Developing world***
1978	3617	2716
2000	3600	1631
% change over 1978–2000	0%	−40%

* Developed World include the Soviet Union, North America, Europe, Australia and New Zealand.
** Developing World includes Latin America, Africa, Asia and the Pacific.

technological revolution, it seemed that forest as a source of building materials and energy resources would inevitably lose its importance. Consumption of forest produce has continued to rise. For instance, in 1950 the timber consumed all over the world was 1.5 billion cubic metres which rose to 2.5 billion cubic metres in 1970. According to the Food and Agriculture Organisation (FAO), the consumption of timber will further rise by 75 per cent in comparison with the last decade, during the next 15 years.[6]

Specialists attribute the intensification of the devastating floods and mud flows, the increase in the frequent droughts in various parts of the world and dry winds, and the dissemination of desertification processes to the decreasing of forest areas. Today, erosion or drift of soil into the seas and oceans amounts to about 30 billion tons a year, which is 10 times more than 20 or 30 years ago.

Besides, cities and industrial zones are facing shortage of fresh and pure air in many parts of the world mainly because of deforestation. Apart from polluting the atmosphere, industries are exhausting its most precious component—oxygen. Due to industrial complexes, the atmosphere is losing 9 billion cubic metres of oxygen every year and replacing the same amount by the carbon dioxide. The concentration of carbon dioxide in the atmosphere has increased by 1. per cent over the last 50 years. According to some forecasts, its share may further double by the end of the century. Obviously, such increase will inevitably affect many natural processes, living organism and the climate of the planet.

Experts also maintain that forests create zones of moisture concentration above them. Sometimes precipitation over them is up to 30 per cent heavier than over woodless areas. This precipitation helps wash down industrial dust from the air in the cities. Moreover, forests also clean the atmosphere of aerosols and other technical substances.[7]

[6] Pritiam Lata: *Forests Vital to Human Survival*, (*The Hindustan Times*, New Delhi, April 10, 1984).
[7] *Ibid.*.

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In recent years, devastating effects of air-pollution caused by elimination of forests are becoming more obvious. In Europe, the problem of acid rain is now becoming very serious. When acid rain falls, it does much damage, both direct and indirect, to trees, crops, lakes, rivers, buildings and, of course, to the health of people and animals. Problem of acid rain has become very expensive to deal with. Over one-third of the 'Black Forest' in Germany is dead or dying. In Sweden also destruction of trees is widespread. Lakes and wells in Scandinavia and Scotland have been made devoid of animal and plant life. Beautiful buildings, famous monuments, like the Statue of Liberty in U.S.A., the Veropolis in Greece, the Colosseum and the Leaning Tower of Pisa in Italy, are being gradually eaten away. The threat presented to forest land, farming land and water by air pollution has been recognised. Need of the hour is to conserve sound natural forests. A sound nature is the most important condition for our descendants' lives. Where the forest dies there dies mankind. With the forests, mankind destroys their important sources of drinking water and oxygen as well as immense cultural and economic values.[8]

FORESTRY IN INDIA

Historical Perspective

India has been renowned from time immemorial as the storehouse of wildlife and its flora and fauna have always been highly valued. It is blessed with beautiful forests, wildlife, rivers and mountains. The history of forests in India is linked with political history. No doubt, the epics *Ramayana* and *Mahabharata* give an attractive description of forests like *Dandakaranya, Nandanvana* and *Khandavan* and ancient Hindu culture is said to have its origins in the *Aranyas* (forests). Yet the successive political upheavals, inevitably, had their effect on the forests.[9] The first indication of forestry administration is found in 300 BC, during the reign of Chandra Gupta Maurya, when a Superintendent of Forests was appointed to protect forests and wild life. Later, during the days of Ashoka too, much importance was given to planting trees along the roads and on camping sites.

Mughal Period

In the Mughal period there did not seem to be any interest for the conservation of forests. However, Akbar did evince keen interest in the planting of trees along canals and highways. As the population increased, more and more forest areas were cleared. Shifting cultivation was also responsible for forest clearance. Only a few species were valued by the rulers and declared as "Royal trees".

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[8] S. S. Chitwadgi: *When the Forest Dies there Dies Mankind* (M.P. *Chronicle*, Bhopal, April 1, 1984).

[9] Thakur, *op. cit.*, p. 6.

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Otherwise, forests were open to all and the people met their requirements of forest produce without any restriction. There was thus a gradual destruction of forests.[10]

British Period

Heavy destruction of forests also occurred in the latter part of the 18th and early part of the 19th century. The Westerners carried away much of the produce to their countries. In the early years of the British Raj, large indents were made on the timber wealth of the country. Teak forests along the coast of Malabar were over-exploited to meet the requirements of the British Navy following the appointment of a Commission in 1800 to inquire into the availability of teak. Apart from this valuable species, the sandalwood trees of South India were exploited for their way to European markets. The first Conservator of Forests was appointed in 1806 to organise timber supplies from the West coast. Then the requirements needed for Governmental activities were easily met. The people too met their needs without difficulty. The general policy was to expand agriculture and collect the cream of the forest timber. Even in the early decades of the nineteenth century, the rapid exploitation of forests and the likely shortfall in the availability of timber, in adequate quantities, began to be felt. The first step towards forest conservancy began in Southern India with the raising of the first teak plantation in Nilambur (Kerala) in 1842.[11]

In 1855, the Government of India issued a memorandum outlining the rules for the conservation of forests for the whole country. A qualified forester, Dr. Dictrich Brandis, was appointed the first Inspector-General of Forests in 1864. The first Indian Forest Act was drafted in 1865. A revised Indian Forest Act came into existence in 1878 and it was made operational in most of the provinces. For the first time the forests were classified into Reserved and Protected forests. In 1927, the Act of 1878 was consolidated to regulate the law relating to forests and forest produce. The first Forest School was opened in Dehradun in 1878. The Provincial Forest Service was inaugurated in 1891. Thereafter technical-education and training were organised and expanded. The Imperial Forest Research Institute (now the Forest Research Institute and College) was established in 1906, in Dehradun.

In 1910, the Board of Forestry was created at the national level under the chairmanship of the Inspector-General of Forests.

The national character in forest administration was considerably diluted with political changes in 1921 when forests became a provincial subject and their administration came to rest in the Government of the concerned provinces.

The gains in the policy and administration of forest conservation received a severe setback during the two world wars, more particularly in the Second World War. The wars accentuated over-fellings. Most of the forests were

[10] *Ibid.*, p. 7.
[11] *Ibid.*

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destroyed in the first World War of 1914–18, for fuel and timber. During the Second World War, forests were further denuded to meet the war requirements. It is in this period that charcoal production was increased for supply to run army trucks. After World War II, forest-based industries cropped up in numbers and without recuperating the forests exploitation continued unabated.[12] As a result, during the Second World War and immediately thereafter many wood based industries and paper industries, using bamboo as the chief source of raw material, were established.

Post-Independence Period

After independence in 1947, almost all the British officers of the erstwhile Imperial Forest Service left India and Indian Officers assumed their charge. With the integration of princely States with the rest of country, the task of consolidation of forests, unification of forest laws and extension of scientific management on a reasonably uniform basis, became the most important preoccupation for the forest administration at the national and provincial levels.

In the early 1950s most of the States enacted new legislations affecting land tenure systems and large areas of privately owned forests came to rest with the forest departments of the States. At about the same time the Annual National Festival of Tree Plantation, *Vanamahotsava*, commenced. For the first time measures were devised for wildlife conservation and to place soil conservation on an all-India footing.

Amidst all these changes the National Plan of Development commenced in 1951. Under the Five-Year Plan, artificial man-made forests were begun to be created on an unprecedented scale. Concerted efforts triggered off increasing productivity of all forest sites maximising the wood resources. Thus, forestry's development found an important place in the National Plans.

FOREST RESOURCES IN INDEPENDENT INDIA

Area under Forests

According to the statistics maintained by the States/Union territories, total forest area classified as forests was 75.29 million hectares in the year 1985–86. It works out to about 22.9 per cent of the total geographical area of the country. Per capita forest area in the country works out to about 0.1 hectare as against the world average of approximately 1 hectare. Per capita averages for some of the developed countries are much more, e.g. Canada 14.2 hectares, Australia 7.6 hectares, USSR 3.6 hectares, United States of America 1.3 hectares. The distribution of forests is also uneven. Andaman and Nicobar Islands have as high as 86.4 per cent area under forests, whereas in Haryana only 3.8

[12] Sitaram Rao: *Introduction to Social Forestry*, (Oxford & IBH Publishing Co., New Delhi, 1979), pp. 1–2.

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per cent of land is under forests. The minimum area of forests, to maintain good ecological balance, has been regarded to range between 25 to 33 per cent. The National Forest Policy, 1988 suggests that the national goal should be to have a minimum of one-third of the total land area of the country under forest or tree cover. In the hills and mountainous regions, the aim should be to maintain two-third of the area under such cover in order to prevent erosion and land degradation and to ensure stability of the fragile ecosystem.

A statement showing the forest area in the country reckoned for the year 1985–86 is given in Table 6.2.

TABLE 6.2
Statewise Forest Area (1985–86) in Square Kilometres[13]

S. No.	*State/UT*	*Forest Area*
1.	Andhra Pradesh	63771
2.	Arunachal Pradesh	51540
3.	Assam	30708
4.	Bihar	29227
5.	Goa, Daman & Diu	1250
6.	Gujarat	19320
7.	Haryana	1699
8.	Himachal Pradesh	21325
9.	Jammu & Kashmir	20900
10.	Karnataka	38645
11.	Kerala	11218
12.	Madhya Pradesh	155414
13.	Maharashtra	64055
14.	Manipur	15154
15.	Meghalaya	8514
16.	Mizoram	15935
17.	Nagaland	8625
18.	Orissa	59555
19.	Punjab	2833
20.	Rajasthan	31290
21.	Sikkim	2650
22.	Tamil Nadu	22379
23.	Tripura	6298
24.	Uttar Pradesh	51337
25.	West Bengal	11879
26.	Andaman & Nicobar Islands	7171
27.	Dadra and Nagar Haveli	206
	Total	752888

[13] Information received from the Ministry of Environment and Forests.

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Deforestation

Even after recognising the importance of forests in day-to-day life, man himself has been the worst enemy of forests. Large scale deforestation in our country has been due to the following reasons:

(1) Pressure of population leading to increase in encroachment on forest land for raising crops and for fuel and fodder;
(2) Requirement of land for development projects like water reservoirs, industrial estates, roads, airstrips, railway tracks and the like;
(3) Over-exploitation of forests for industrial raw material, railway sleepers, timber for naval stores, military equipment and fire arms and non-industrial uses;
(4) Heavy grazing by the cattle;
(5) Adoption of the practice of shifting cultivation, specially in tribal regions like Assam, Tripura and other north-eastern states; and
(6) Destruction of the forests due to insects and pests and fire.

A statement regarding the loss of forests in the States/Union territories during 1951–52 to November 30, 1983 is given in Table 6.3.

The annual rate of diversion of forest land for non-forest purposes has been brought down considerably after the enactment of the Forest (Conservation) Act, 1980. This Act came into force on October 25, 1980 and was amended in 1988. It lays down that no State Government or other authority shall make, except with the prior approval of the Union Government, any Order directing that:

(i) any reserved forest or portion thereot shall cease to be reserved;
(ii) any forest land or any portion thereof may be used for any non-forest purpose (as defined therein);
(iii) any forest land or any portion thereof may be assigned by way of lease or otherwise to any private person or to any authority, corporation, agency or any other organisation not owned, managed or controlled by the Government;
(iv) any forest land or any portion thereof may be cleared of trees which have grown naturally in that land or portion, for the purpose of using it for reafforestation.

The Act also includes a penal clause for contravention or abetment of its provisions, the quantum of punishment being limited to simple imprisonment for a period of fifteen days.

The Forest (Conservation) Act, 1980 has proved instrumental in controlling indiscreet diversion of forest land for non-forest purpose. The rate of such diversions has been reduced from about 1.5 lakh hectares per year to a modest 16,500 hectares since the enactment of the Act. The yearwise details are as follows:[14]

[14] *Ibid.*

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TABLE 6.3

Loss of Forests in the States/Union Territories from 1951–52 to 30–11–1983

(in thousand hectares)

S. No.	State/UT	Forest Area lost upto 1983
	States	
1.	Andhra Pradesh	205.4
2.	Assam	80.0
3.	Bihar	70.0
4.	Gujarat	188.6
5.	Haryana	22.1
6.	Himachal Pradesh	32.9
7.	Jammu & Kashmir	90.0
8.	Karnataka	311.3
9.	Kerala	204.5
10.	Madhya Pradesh	1896.2
11.	Maharashtra	221.8
12.	Manipur	0.1
13.	Meghalaya	—
14.	Nagaland	3.5
15.	Orissa	134.8
16.	Punjab	11.5
17.	Rajasthan	87.1
18.	Sikkim	.8
19.	Tamil nadu	67.7
20.	Tripura	52.5
21.	Uttar Pradesh	237.1
22.	West Bengal	321.2
	Total	4240.0
	Union Territories	
23.	Andaman & Nicobar Islands	13.8
24.	Arunachal Pradesh	40.2
25.	Dadra & Nagar Haveli	1.0
26.	Goa, Daman & Diu	22.2
27.	Mizoram	—
28.	Delhi	0.1
	Grand Total	4342.9

NOTE: Includes an area of 25.6 thousand hectares for which statewise details are not available.

SOURCE: Central Forestry Commission.

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Year	*Area in hectares*
1981	2672
1982	3246
1983	5702
1984	7837
1985	10608
1986	11963
1987	72780
1988	18765
1989 (upto January)	397
Total	133970

Provisions for Forest Protection in the Constitution

India is one of the very few countries of the world which has enshrined in the Constitution a commitment to environmental protection and improvement. Although some provisions in the Constitution in the area of improvement in the quality of life existed since its proclamation in 1950, a direct reference to forest protection and improvement was introduced with the Constitution (Forty-second Amendment) Act of 1977. It has interjected a new dimension to public responsibility by obligating the Union Government to protect and improve environment for the good of society as a whole.

Article 48A, inserted by the Constitution (Forty-second Amendment) Act in 1977, makes a specific reference to forest protection as an obligation of the State. This article states:

> The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.

Constitutionally, it has been enjoined upon every citizen of India as a fundamental duty:

> to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures.[15]

Current Pattern of End-use of Wood

Wood touches every facet of human life. It is, however, only in the organised sector that we have reliable data on the end-use of timber as this sector is obliged to report the figures under the Collection of Statistics (Central) Rules 1950, framed under the 1953 Act. The rest of the data is obtained from the Department of Commercial intelligence and Statistics, under the Ministry of Commerce for Imports and Exports Statistics, the Forest Survey of India, the

[15] Article 51A (G).

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National Sample Survey Organisation, and the studies undertaken by various organisations in regard to consumption of wood in relevant sectors.

For a comprehensive list on the end-use of wood and its products, a detailed study by a professional organisation with expertise in the field would be necessary. The Forest Survey of India, however, has estimated the demand of timber (wood other than firewood) as in Table 6.4.

TABLE 6.4
Estimated Demand of Timber

Sl. No.	*Description*	*Requirement of timber (in million cu. m.)*
1.	Pulp & Paper	6.57
2.	Plywood & Veneer	1.71
3.	Fibre board, particle & Chip board	0.23
4.	Match industry	0.44
5.	Sports goods industry	0.03
6.	Railway sleepers	0.50
7.	Agriculture implements, bullock-carts & temporary rural constructions	5.43
8.	Furniture & panelling	0.36
9.	Housing	2.50
10.	Packaging	6.81
11.	Others (including mining pit props, truck & bus bodies)	3.00
	Total	27.58

As against the demand of over 27 million cubic metres, the current permissible cut of timber from forests is of the order of 12 million cubic metres leaving a deficit of about 15 million cubic metres.

The inventories made by the Forest Survey of India and the report of 28th round of Central Statistical Organisation, given in Table 6.5, reveal that per capita consumption of firewood in rural areas of various States/UTs varies from 0.154 tonnes in Punjab to 0.8 tonnes in Arunachal Pradesh. In urban areas the per capita consumption is lowest in Haryana with a figure of 0.011 tonnes, and highest in Arunachal Pradesh with a figure of 0.8.

On the basis of the figures of per capita consumption indicated above and the projected figure of population, the firewood consumption in 1987 is estimated at 134 million tonnes in rural India and 23 million tonnes in the urban parts of the country. The total works out at 157 million tonnes which is equivalent to 235 million cu.m. The production of firewood from forests estimated by FSI on the basis of inventories made by it, is only 40 million cu.m. Thus, as of now, there is a gap of 195 cu.m between the demand and production of firewood.

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TABLE 6.5
Per Capita Consumption of Firewood

Firewood	*Annual per capita consumption*	
	Rural	*Urban*
0.25	Bihar, Gujarat, Haryana Maharashtra, Punjab, Tamil Nadu, UP, West Bengal, Delhi, Chandigarh, Dadar & Nagar Haveli	Andhra Pradesh, Bihar, Gujarat, Haryana, J & K, Karnataka, MP, Maharashtra, Punjab Rajasthan, Tamil Nadu, UP, West Bengal, Chandigarh, Delhi, Pondicherry
0.25 to 0.4	Kerala, MP, Manipur Pondicherry	Assam, Himachal Pradesh Kerala, Manipur, Meghalaya, Nagaland, Orissa
0.4 to 0.5	Assam, Nagaland, Orissa, Andaman & Nicobar Islands	Tripura, Andaman & Nicobar Islands
Over 0.5	Arunachal Pradesh, Himachal Pradesh, J&K Meghalaya, Tripura Lakshadweep	Arunachal Pradesh Mizoram

Shortage of Wood

There is a serious shortage of wood for both industrial and fuelwood purposes in the country. In a developing country like India, the demand for forest products is growing at a rapid pace. The gap between availability and demand for wood is ever widening. As of today, this gap is of the order of 130 million tonnes in respect of fuelwood which, by the turn of the century, would escalate to about 150 million tonnes. As regards industrial wood, the current deficit is nearly 15 million cu.m which, by AD 2000 would worsen to 33.5 million cu.m. This gap is indeed staggering and needs to be made good by all means possible at our command. The long-term solution to this problem is to undertake afforestation on a massive scale on every parcel of non-arable land both within and outside forests so that the basic needs of man in regard to timber, fuelwood and pasture are met as best as possible. In the meanwhile, short-term expedients, such as substitution of wood in relevant sectors could be taken recourse to. The question of substitution of wood in fact was examined in detail by an Inter-Ministerial Group on Wood Substitution. The Group suggested a number of measures which *inter alia* include encouragement of alternative sources of energy, e.g., biogas, solar energy, LPG, electricity, and coal; reduction in excise duty on clearly identifiable substitutes to replace certain specific uses of wood; fiscal incentives to end users of wood who reduce its consumption by substitution in the industrial sector; ban on use of wood for furnitures and building

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construction in Government bodies/organisations/institutions; progressively increased use of prestressed cement concrete and steel sleepers in place of wooden sleepers; use of metals for railway carriages; use of alternative material in building construction; substitution of wood by plastics, corrugated fibre boards, bamboo, etc. in packaging; withdrawal of subsidy on wood used for packaging; increased use of non-conventional raw material, e.g. bagasse, agro-wastes, waste paper in the field of pulp and paper; increased use of plastics in matchwood industry; and use of non-conventional raw material in panel products.

Pursuant to the above recommendations and as a part of overall conservation strategy, efforts are being made to reduce the demand for conventional wood products through substitution. As substantial quantity of wood is used for construction purposes, the Ministry of Urban Development is encouraging the use of alternative material. The Ministry of Finance has issued instructions for discouraging use of wooden furniture in Government offices. The Railways are taking requisite steps to minimise use of wooden track sleepers. They have stepped up production of concrete sleepers which reached a level of 22.9 lakh sleepers in the year 1987–88 against 14.52 lakh during 1985–86. The production is expected to increase to about 38 lakh sleepers in another 2 years. The Railways have also taken recourse to import steel sleepers. The use of wooden sleepers is being phased out and it is to be brought down to 4 lakh sleepers by the end of the Seventh Plan. As an alternative to wooden packing cases, cartons made of corrugated fibre board are being promoted.[16].

FOREST POLICY IN INDIA

Forest Policy in Pre-Independent India

The history of forestry in India is one of continuous over-exploitation. For the first time in 1855, Lord Dalhousie, the then Governor-General of India, proclaimed a forestry policy, namely, that timber standing on state forest was State property, and that private individuals had no rights or claims over it. In order to implement this policy an Indian Forest Service was organised whose primary objective was the conservation and protection of existing forests.[17]

Forest Department of 1866[18]

In 1866, the Forest Department of India was created. The Forest Department found that the forests of the country were fast disappearing before the spread of cultivation. Agricultural resources were vanishing and the climate was being

[16] Information received from the Ministry of Environment and Forests.
[17] Kamala Chowdhry: *Managing Forests for Development*, (*Financial Express*, New Delhi) February 5, 1984.
[18] Thakur: *op. cit.*, p. 7.

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adversely affected. The Forest Department stepped in to prevent the entire deforestation of the country which would most certainly have taken place.[19]

The people, left to themselves, have never been able to manage forests properly nor to understand how forests may be conserved and utilised to the best advantage. Their practice has been simply to cut and clear the forests to make room for cultivation, and, as soon as the virgin soil was spent, they pushed on, broke up fresh land and cleared more forest.

The Forest Department, by its intervention, stopped in a great measure the work of destruction of forests and ensured a continuous revenue to the Government. When it began its work the chief duties of the Forest Department were the preservation and development of large timber forests such as the sal forest of Dudh and deodar forest of Himalayas and the forests of the Western Ghats.

National Forest Policy of 1894*

The first National Forest Policy was enunciated in 1894. The policy recognised three vital needs:

(a) promotion of general well being of the country,
(b) fulfilling the needs of the people, and
(c) preserving climatic and physical conditions.

The sole object of this policy was to administer the State forests for public benefit. The regulation and restriction of rights and privileges were recognised but it was mentioned that these should be in consonance with preservation of the forests. The forests in the State were classified as (a) forests the preservation of which was essential on climatic and physical grounds, (b) forests which afforded valuable timber for commercial purposes, (c) minor forests and (d) pasture lands. It was not intended that any attempt should be made to classify existing State forests under one or any of these four heads. The classification was useful only as affording a basis for the indication of the broad policy which should govern the treatment and use of each class.

Forest Policy in Post-Independent India

National Forest Policy of 1952

The fundamental concepts underlying the policy of 1894 still held good, but the 1952** policy statement arose out of a need for re-orientation of the last policy in the light of changes which had taken place in the past half a century. The National Policy of 1952 was formulated on the basis of six paramount needs, namely (a) the need for evolving a system of balanced and complementary

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[19] Dr. M. S. Randhawa: *Farm Forestry*, (*The Tribune*, Chandigarh) August 19, 1984.
* For text of Policy *see*. Appendix 6.1.
** For text of policy see Appendix 6.2.

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land use; (b) the need for checking denudation of mountains, erosion progressing along banks of great rivers, invasion of coastal sea-sands and the shifting of land sand-dunes; (c) the need for establishing tree lands; (d) the need for ensuring progressively increasing supplies and grazing, smallwood and firewood to release cattle dung for manuring fields; (e) the need for sustained supply of timber and other forest produce for defence, communications and industry, and (f) the need for the realisation of the maximum annual revenue in perpetuity consistent with other needs.

In this policy the forests were classified functionally unlike in 1894, when classification was the guide for affording a broad policy for working practices.[20]

The functional classifications were:

(a) Protected forests, i.e. those forests which must be preserved for physical and climatic reasons;
(b) National forests, i.e. which managed to meet needs of defence, communications and industry;
(c) Village forests, i.e. those which provided firewood to release cowdung for farm manure; and
(d) Tree lands, i.e. those outside the organised forest management, yet necessary from the environmental point of view.

This policy was contradictory to the notion widely prevalent at that time that forestry, as such, had no intrinsic right to land but may be permitted on sufferance on residual land not required for any other purpose. On the whole, the policy aimed at maintaining one-third of the country's land area under forests in general.

In practice, the policy dicta could not be followed fully. The functional classification of forests could not be adopted since forests had multiple uses and could not be divided into watertight compartments. Due to various constraints, primarily financial, no systematic programme could be drawn up to extend the tree land or establish new ones in good measure. The target of 1/3rd of the country's land areas under forests remained a distant dream.

Grazing policies remained unimplemented and increasing cattle population continued to affect forestry's conservation principles. By and large, forests were accorded low priority in the States on account of other needs of more immediate concern. The indiscriminate use of forest land for non-forest purposes increased and in the thirty years since the enunciation of the policy in 1952, 4.3 million hectares of forest land was diverted to non-forest purposes. There was inadequate appreciation of the role of forests though the country occupied 75 million hectares or 22.8 per cent of its geographical area under forests, in various fields complementary to forestry activities, particularly in preserving and conserving the ecological balance and environmental stability. The removal of forest cover for fuelwood for domestic consumption far outstripped the planting

[20] Thakur, *op. cit.*, pp. 25–26.

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programmes and denudation of forests, decimation of forests habitat of wildlife and loss of rich genetic diversity in India's natural forests continued.[21]

Increased production of wood for industrial and fuelwood purposes also did not materialise leading to serious shortages. Fuelwood prices increased steadily. Shortages and rising prices have led to massive illegal fellings and inevitable tensions between rural communities and the Forest Department. The 1952 policy, therefore, needed to be re-examined in all facets.

The Central Board of Forestry

Even before the revised National Forest Policy was introduced, the Government of India had constituted a Central Board of Forestry (CBF) in 1950 to provide guidance to the Government in the formulation of policy and programmes in the field of forestry. The CBF set up its own standing committee to follow up the implementation of its recommendations.

The CBF became the supreme advisory body for review of national forest policy, formulation of detailed policy and for its implementation. The CBF had 22 meetings between May 1951 and December 1987. Some of the more important recommendations of the CBF on forest policy and its implementation are as follows:[22]

(i) Necessary financial provision should be made by the Government concerned to pay compensation to the Forest Department for planting an equivalent area, when forest area is taken up for mining operations, or for planting up abandoned mines.

(ii) Each State should set up a high powered Board, to regulate the land use policy on the principle of rational land use.

(iii) Extension forestry—farm forestry should be popularised through a suitable extension agency and by providing incentive for planting and protecting trees. Coordinated research projects in different aspects of extension forestry—farm forestry should be undertaken on a priority basis.

(iv) A fair portion of Government wastelands, which are not fit for economic cultivation and are still outside the forest boundary, should be placed at the disposal of the Forest Department for the sole purpose of raising fodder reserves.

(v) Considering that there is a need to revise the Indian Forest Act, 1927 and make it as uniform as possible, a draft resolution should be circulated to the States for adoption by the State Legislatures under Article 252(1) of the Constitution.

(vi) All forms of contract systems in forestry operations should be eliminated within a time bound programme. Collection of minor forest produce should be organised through tribal cooperatives/agencies at the grassroots level.

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[21] *Ibid.*

[22] Information received from the Ministry of Environment and Forests.

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(vii) The states may like to create forest development funds by levying a cess on specific items of forest produce. Such a fund should be utilised for the development of forests and should be separate from annual budgetary allocations as well as non-lapsable.

(viii) For the conservation of forests the extraction of wood from forests should be stopped. The requirement of wood for the country should be satisfied by import and farm forestry.

(ix) A sub-Committee of Forest Ministers of States and technical experts be constituted to scrutinise the draft of the revised Forest Policy. The sub-Committee will also examine the apportionment of the responsibility of Centre and the States so far as protection, management and development of forests is concerned.

The Estimates Committee Report (1968–69)

The Estimates Committee (1968–69) of the Fourth Lok Sabha, in its Seventy-sixth Report, also opined that a reappraisal of the National Forest Policy should be made by an *ad hoc* body of experts in the light of experience gained during the years of development plans and the research and technological advancement made in the international field of forestry, and that they should also suggest other suitable changes in the existing policy so as to make the new revised policy a more purposeful, realistic and effective apparatus for the development of forests and forestry in the country.

The important observations of the Estimates Committee in this respect were:

(i) effective steps should be taken by the Central Board of Forestry to increase the forest area in the various states;

(ii) proportions of the area that ought to be under forests in each State/Union territory should be clearly indicated;

(iii) the Central Government should accord priority to the detailed survey of all lands as a basis for evolving a system of balanced and complementary land-use;

(iv) necessary steps should be taken to demarcate forests on functional basis and to collect statistics thereto;

(v) the Government should take effective measures to ensure that simultaneous steps are taken to afforest suitable areas equal to those which have to be deforested on account of the implementation of development projects;

(vi) urgent steps should be taken by the Centre to carry on a special study of forest grazing in the country, so that a sound grazing policy is evolved. In implementing a sound grazing policy, it is essential to seek the willing cooperation of the villagers;

(vii) in the matter of shifting cultivation, besides introducing agro-silvicultural measures with the provision of necessary opportunities and facilities, steps should be taken to provide tribals with alternative means of livelihood;

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(viii) the feasibility of regulating/restricting rights of local inhabitants under customary laws in certain States by providing suitable assistance to the affected parties may be examined by the Central Board of Forestry; and

(ix) there is need to provide adequate funds on a continuous basis to achieve the desired results in the development of forests.

National Commission on Agriculture

Since the enunciation of the National Forest Policy in 1952 developments of far reaching importance had taken place in the economic, social and political fields. The Central Board of Forestry recommended the creation of a National Commission on Agriculture to study and recommend the basis for a revised National Forest Policy.

The Commission published its report in 1986. It had recommended that the National Forest Policy should be based on the following important needs of the country.

(i) Managing the forest resources of the country so as to provide maximum goods and services for the well being of the people and economic progress of the country;

(ii) Checking denudation and erosion in mountainous regions and catchments of rivers on which depend perennial stream flows, fertility of the land in the catchments and the useful life of dams and reservoirs;

(iii) Preventing erosion along treeless banks of rivers and on the vast stretches of wastelands, and arresting the spread of sea sand on coastal tracts and of shifting sand dunes in the Western desert;

(iv) Maximising the forest productivity with a view to meeting the growing demand for industrial raw materials, timber and other forest produce for defence, communications and domestic needs and to augment employment potential with the ultimate aim of national prosperity;

(v) Providing small timber and fuelwood requirements of the rural population;

(vi) Providing recreational and tourist opportunities in the forest without impairment of forest resources including wildlife and preservation of environmental balance;

(vii) Providing grass and grazing for livestock in forest areas ensuring that it is not harmful to the forests;

(viii) Creating blocks of forests interspersed with cultivation or by introducing trees in larger numbers in the ecosystem, after careful selection, for maintaining a healthy relationship between soil, vegetation and animal life and establishing diverse biotic complexes for minimising chances and elimination of natural enemies of insects and other pests which damage crop monoculture.

The Commission has stressed that no deforestation should be permitted without the approval of the State Legislature.

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N. D. Tiwari Committee Report

The N. D. Tiwari Committee was constituted towards the end of February 1980 to examine the adequacy of the existing administrative, legal and institutional arrangements for protecting environmental aspects.

The Committee noted: "With the growing pressures on our natural resources from human and animal population, various forms of environmental degradation are evident in different parts of the country. As examples of such drastic degradation may be mentioned the sub-Himalayan tracts, the Western Ghats, the plains, forests of peninsular India and some coastal areas." Some of the significant recommendations and observations made by the Committee are:[23]

(1) For effective and scientific management of reserves, other than Biosphere Reserves, a sub-cadre of scientific personnel should be created within the Forest Departments of States and Union territories. Personnel of this sub-cadre should be given intensive training in modern methods of wildlife management in a wildlife training and research institution to be established for the purpose. These personnel should not be interchangeable with those in the Forest Services.

(2) A sound, well-informed interest in nature among our people needs to be cultivated. Nature Education at all levels of education and public communication, must be efficiently organised especially in our schools.

(3) The suggested amendments to the Indian Forest Act, 1927, the National Forest Policy and the Wildlife (Protection) Act, 1972 should be notified for urgent implementation.

(4) Fuel and fodder supply should be included in the Minimum Needs Programme of the Central Government.

(5) The country can hope to achieve a continuous improvement in agricultural productivity only if problems of land degradation are tackled with the most vigour.

(6) Diversion of forest land to non-forestry uses would need prior approval of the Central Authority constituted for the purpose.

(7) Special provisions are needed to protect sandal wood, red-sandal wood etc. and other valuable species of timber and forest products.

(8) To save forests from degradation and consequent upsetting of the ecological conditions the following safeguards have been provided:

(a) the encroachments on forest lands account for a sizeable degradation of forest area. The present procedure of evicting the encroachers is so lengthy that once a forest area is encroached upon it becomes treeless before the encroachment is removed. The revised provisions will enable speedy prevention of encroachment.

(b) forest contractors are another source of degradation of forest

[23] Government of India: *Report of the Committee for Recommending Legislative Measures and Administrative Machinery for Ensuring Environmental Protection*, New Delhi, (Department of Science and Technology, 1980), pp. 1–2, 30–31.

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areas. The revised Forest Act will enable the State Governments to 'nationalise' the trade in forest products and thus eliminate the contractors.

(c) punishments for various forest offences are too inadequate in view of the increased value of timber and other forest products. The revised Forest Act provides stringent punishment.

The Committee emphasised that at present the greed of commercial interests and their lack of concern for the future, as well as the genuine needs of the poor for essential articles of daily need such as fuel and fodder, contributed to the denudation of forests and vegetation and thereby to the degradation of the environment. The Committee hence recommended the inclusion of fuel and fodder supply in the Minimum Needs Programme. Unless the basic human needs are met, the foundation necessary for building the edifice of eco-development will be missing and punitive measures alone will not do.

Revised Forest Policy

After the National Forest Policy was laid down in 1952, forests throughout the country have suffered serious depletion on account of intense pressures arising from the ever-increasing demands for firewood, timber and fodder, as well as the inadequacy of protective measures, the sacrifice of forest lands to non-forest purposes and the tendency to look upon forests as merely a revenue earning resources.

In this background the issue of revision of the Forest Policy of 1952 was under the active consideration of the Government for some time. In view of the social, economic and ecological importance of forests considerable thought was given to the multifarious implications of the Forest Policy. Although the Forest Policy of 1952 aimed at a forest coverage of one-third of the total land area of the country, due to various constraints, this could not be attained. On the other hand, substantial areas of forest land continued to be diverted for non-forest purposes and the genetic diversity was considerably affected by the destruction of flora and fauna. This had necessitated a re-examination of the Forest Policy of 1952 and giving emphasis to the conservation and ecological aspects in forestry practices. After considerable discussions and deliberations the revised National Forest Policy was finalised and introduced in the Parliament on December 7, 1988.*

The salient features of the new Forest Policy are:

(i) Maintenance of environmental stability through preservation and restoration of ecological balance;

(ii) Conservation of the natural heritage of the country by preserving the remaining natural forests and protecting the vast genetic resources for the benefit of posterity;

* For the text of the new Forest Policy see Appendix 6.3.

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(iii) Meeting the basic needs of the people, especially fuelwood, fodder and small timber for the rural and the tribal people; and
(iv) Maintaining the intrinsic relationship between forests and the tribal and other poor people living in and around forests by protecting their customary rights and concessions on the forests.

The Policy outlines the following approach for meeting the objectives enshrined in it:

(i) The existing forest land and forests will be fully protected and their productivity will be improved. Emphasis will be given to enhance forest cover on hill slopes and catchment areas of rivers;
(ii) In order to conserve biological diversity, a network of sanctuaries, national parks, biosphere reserves and other protected areas will be extended and better managed;
(iii) The people will be actively involved in programmes of protection, conservation and management of the forests; and
(iv) Forest based industries are expected to raise raw materials through a tie-up with private cultivators, specially small and marginal farmers. The supply of forest produce to industries at concessional prices should cease and natural forest should not be made available to industries for undertaking plantations.[24]

Implementation of the Policy

Forest Conservation

The primary thrust in the National Forest Policy, 1988 is on the maintenance of environmental stability, restoration of ecological balance and the preservation of the remaining natural forests especially tropical rain/moist forests. It states that "the principal aim of Forest Policy must be to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which are vital for sustenance of all life forms, human, animal and plant. The derivation of direct economic benefit must be subordinated to this principal aim." Measures enunciated in the Policy are: full protection of existing forests and forest lands; increase in vegetal cover on hill slopes, catchment areas of rivers, lakes and reservoirs, ocean shores and semi-arid, arid and desert tracts: strengthening and extension of network of national parks, sanctuaries, biosphere reserves and other protected areas; linking protected areas through "Corridors"; restriction on schemes and projects which interfere with forests that clothe steep slopes, catchments of rivers, lakes and reservoirs, geologically unstable terrain and other ecologically sensitive areas; preservation of tropical rain/moist forests, particularly in areas like Arunachal Pradesh, Kerala and Andaman and Nicobar Islands; restriction on clear-felling of adequately stocked

[24] Information received from the Ministry of Environment and Forests.

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natural forests ever for the purpose of production forestry programmes; encouragement to substitutes of wood for various ends and popularisation of energy saving devices; provision of adequate funds for regeneration/compensatory afforestation in projects involving diversion of forest land; revegetation of mines and quarries in forest land; containment of shifting cultivation within already affected areas; non-regularisation of encroachments on forest lands; use of improved and modern management practices for fire protection; complete protection of young plantations and regeneration areas against grazing.

In the recent past, significant measures had been taken for protection/conservation of forests. Some of these are as follows.

(a) Suspension of commercial fellings in Uttar Pradesh in areas of over 1,000m elevation.

(b) Commending to Railways and mining industries to gradually phase out the use of timber for sleepers and mine crops, and initiate measures to introduce cement sleepers, metal props, etc.

(c) Restricting the release of forest land under Forest (Conservation) Act, 1980 solely to meet the developmental needs, in the absence of alternatives, thus bringing down the loss of forest areas from an average of 1.5 lakh hectares per year prevalent before the Act came into force to about 16,500 hectares per annum thereafter.

(d) Financial support to the State Governments under a Centrally Sponsored Scheme with a view to developing an infrastructure for the protection of forests.

(e) Liberalisation of Import Policy for timber; fiscal incentives to industries for wood substitution.

(f) Implementation of a scheme for rehabilitation of *Jhumias* with financial assistance from the Central Government.

(g) Issuing guidelines to State/UT Governments from time to time. Some of these guidelines are as follows.

(i) To avoid felling of natural forests and where such fellings are inevitable for restoration of crop or other silvicultural considerations, to restrict the same to areas not exceeding 10 hectares in the hills and 25 hectares in the plains;

(ii) To consider banning of fellings in the hills above 1,000 metres, at least for some years;

(iii) To identify critical areas in the hills and mountains which require protection from felling of forests and need immediate vigorous afforestation; and

(iv) To set apart 4 per cent of the geographical area as protection area like wildlife sanctuaries, national parks, biosphere reserves, etc.[25]

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[25] *Ibid.*

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FOREST DEVELOPMENT DURING VARIOUS PLANS

First Five-Year Plan

The First Five-Year Plan (1951–56) showed maximum concern about rehabilitation of the forest area, which had been over-exploited either to meet the Second World War needs or unintelligently destroyed by the quitting zamindars at the time of abolition of the zamindari system. Little effort was made to help stabilise soil in highly eroded areas through afforestation. In response to the forest policy of 1952, the 'Vana Mahotsava', was inaugurated to create enthusiasm in the popular mind for the preservation of forests and planting of new trees. The Central Board of Forestry was asked to indicate the proportion of area that ought to be under forests, after taking note of the nature of terrain and the principle of proper land use in states. Man-made forests were raised over an area of about 50,000 hectares. The plan outlay on forestry was Rs. 9.7 crore, which comprised 0.49 per cent of the total plan outlay.[26]

The Second Plan

In the Second and Third Plans, the programmes of consolidation of areas under forests were continued. Additionally, construction of forest roads and economic plantations received more emphasis. To improve the quality of forest products, plantations of industrially and commercially valuable species were undertaken. Now plantations of match wood and industrial timber were undertaken over an area of 164,000 hectares. The outlay on forestry (Rs. 19.3 crore) in the Second Plan was about double of that in the First Plan.[27]

The Third Plan

The Third Five-Year Plan for forestry was conceived in the backdrop of an expected yawning gap between the demand and supply of forest produce. The Plan laid special emphasis on measures to meet the long-term requirements of the country and to ensure more economic and efficient utilisation of the valuable forest products. The immediate objective was to increase the output from the existing forest through better techniques of timber extraction, improvement of communications and popularising the use of less commonly known secondary Indian timber after proper seasoning and preservative treatment. As the various schemes implemented during the Third Five-Year Plan period were oriented towards attaining "self-sufficiency in industrial timbers, fuelwood and other forest products" large scale plantations of industrially valuable species were undertaken.[28] The target for new plantations was fixed at an all-time high figure of 280,000 hectares. To avoid wastage, better techniques

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[26] S. D. Thapar: *India's Forest Reserves*, (Delhi Birla Institute of Scientific Research, 1975), p. 28.
[27] *Ibid.*, p. 29.
[28] Government of India, *Report of the National Commission on Agriculture*, Part IX, *Forest* (New Delhi, Ministry of Agriculture and Irrigation), 1976, p. 13.

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of timber extraction and of proper seasoning and preservation treatment were recommended. The Central Government provided cent per cent assistance for raising plantations under 'quick growing species' which were intended primarily to meet the needs of pulp and paper mills.[29] With a view to investigating the availability of raw materials in the possible industrial catchment areas and determining their economic viability, a project, called 'pre-investment Survey of Forest Resources', was initiated during the plan period in collaboration with the United Nations Special Fund (UNSF) and Food and Agriculture Organisation (FAO) of the United Nations. It was accepted as a matter of policy that in order to obtain higher timber yields from the forest areas under exploitation and to reduce wastage, improved logging tools were to be used. Training of forest officers and field executives in the State Governments and of lessees and forest contractors in logging planning and efficiency studies was started with the establishment of logging training centres set up with the assistance of the UNSF. The total plan provision for forestry was Rs. 51.4 crore.

While the Third Plan for forestry was grandiose, the same could not be said of its achievements. The actual expenditure in this sector of the economy was about Rs. 31.7 crore. Against the target of 280,000 hectares of plantations, hardly 180,000 hectares were raised. Under the centrally sponsored scheme plantations were raised on 52,800 hectares against the target of 55,000 hectares. The greatest shortfall was in farm forestry, where against a target of 255,692 hectares, the achievement was hardly 20,800 hectares. Only 7,699 miles of road could be constructed against the target of 10,017 miles. Rehabilitation of degraded forests fared a little better. The actual achievement was 206,000 hectares against a target of 212,260 hectares.[30]

The Fourth Plan

In the sector of forestry, three main objectives were aimed at during the Fourth Plan.[31] These were: (a) to increase the productivity of forests, (b) to link up forest development with various forest based industries, and (c) to develop forests as a support to rural economy. Emphasis was laid on measures to meet the immediate and long-term agricultural and industrial requirements. Further efforts were made at creating large scale plantations of valuable quick growing species and species of economic and industrial importance. Concerted efforts at regenerating areas, where forest produce was removed for industrial uses, were taken. The object was to achieve self-sufficiency in forest products as early as possible, specially for major forest-based industries such as pulp, paper, newsprint, wood panel products and matches so that the imports of some of these items could be avoided and some sizeable exports of pulp and wood panel products built up.

The physical targets of the Fourth Plan were: (1) planting of quick growing

[29] *Ibid.*, p. 14.
[30] Thapar, *op. cit.*, pp. 29–30.
[31] Report of National Commission on Agriculture, *op. cit.*, p. 14.

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species covering 2.87 lakh hectares, (2) planting of economic species of trees like teak, semal and sissoo over 3.39 lakh hectares, and (3) development of plantations over 2 lakh hectares under the scheme of rehabilitation of degraded forests. It was also proposed to take up wastelands contiguous to the forests in large blocks of 20 hectares and above for fuelwood plantations.

In financial terms, the total outlay on forestry during the Fourth Plan was of Rs. 122 crore. Under the scheme of quick growing species, the target was of 2.87 lakh hectares of plantations but the success of these plantations had been rather limited. In a number of States, this programme had not succeeded. Under economic plantations, the programme had been generally successful. Under farm forestry-cum-fuelwood plantations, the target of 75,000 hectares was expected to have been exceeded by 5,000 hectares.[32]

The Fifth Plan

The primary objective in the Fifth Plan was to take up a dynamic programme of production forestry, aiming at clearfelling and creating large scale man-made forests with the help of institutional financing. The produce from clearfelled areas was also to be utilised in wood based industries by locating additional units wherever required. The second important objective was to develop farm forestry and to improve degraded forests so as to increase the fuel and timber supply in the rural areas.[33] A system of meaningful forest surveys to assess the present growing stocks, increments and potential increments by forest divisions, natural regions and States, along with a proper information system was also to be built up. The need for data base with respect to forests had been pointedly stressed, and a large scale project planning for forestry was suggested. Three forestry projects had been formulated in the States of Uttar Pradesh, Maharashtra and Madhya Pradesh. These projects were extended to other States, namely, Bihar, West Bengal, Kerala, Mysore, Meghalaya, Andaman and Nicobar Islands, etc. Programmes for development of national parks, strengthening of research on endangered animals including Project Tiger were taken up during the Fifth Plan period. Significant progress was made in respect of economic and industrial plantations with an achievement of about 22 lakh hectares by 1979–80.[34]

The Sixth Plan

The main objective of the forestry programme during the Sixth Plan period was the conservation of existing forests and the launching of country-wide afforestation and social forestry programmes. Forest policy had to fulfil three sets of needs:

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[32] Thapar, *op. cit.*, pp. 30–31.
[33] Report of National Commission on Agriculture, *op. cit.*, p. 15.
[34] *Ibid.*, pp. 15–76.

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(a) ecological security;
(b) fuel, fodder and other domestic needs of the population; and
(c) the needs of village, small-scale and large-scale industries.

In conformity with this objective the major area of thrust was the promotion of a people's forestry movement.

Investment in Forestry

Special emphasis had been laid on forestry programmes in the Plan and this had been duly reflected in the outlay. Against Rs. 483.22[35] crore of investment during the 30 years of planned development between 1950 and 1980, the Sixth Plan alone provided an outlay of Rs. 692.49 crore. Social forestry was given the highest importance in the Plan. A number of projects were also launched through foreign aid-agencies. Some more projects had also been prepared and kept on shelf for implementation as and when institutional finance was available. A national "umbrella" project had also been conceived for extending social forestry programmes to all parts of the country.

The Seventh Plan

In keeping with its slogan "Forests for Survival", the Union Government has drawn up an ambitious programme for forestry as part of the Seventh Plan (1985–90). An outlay of Rs. 7,000 crore is envisaged for the purpose—almost 10 times more than what forestry received in the Sixth Plan.

The none-too-happy state of the environment in the country, aggravated by the Bhopal gas tragedy, and the pictures of the barren land mass brought back by Sq. Ldr. Rakesh Sharma from his space voyage appear to have had a great bearing on the formulation of the Seventh Plan programme to check further denudation of greenery.

In his national broadcast on January 5, 1985 Prime Minister Rajiv Gandhi also emphasised the need to halt the trend of continuing deforestation. A National Wastelands Development Board was accordingly proposed by the Prime Minister with the object of bringing 5 million hectares of land every year under fuelwood and fodder plantations. He called upon the people of India to 'participate in the movement for afforestation.'

The President in his address to the joint session of both Houses of Parliament on January 17, 1985 stated that the Government had constituted a separate Department of Forests and Wildlife in recognition of the vitally important national task of conserving and developing the forest wealth of the country. He said that a new forest policy will be announced soon. A Wastelands Development Board was set up to give new impetus to afforestation as a people's movement.

The Seventh Five-Year Plan gives highest priority to restore the forest cover

[35] Government of India: *Annual Report of 1983–84, Ministry of Agriculture, Department of Agriculture and Cooperation*, p. 117.

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with 33 per cent of the geographical area of the country being brought under forests from the present level of about 23 per cent. Reduced top-soil erosion, reclamation of marginal lands, reduced wind velocities, and increase in the organic matter content of soils and waterholding capacity are some of the benefits that will result, besides a significant improvement in the rural economy. Increasing forest cover would create additional rural employment opportunities and help to fulfil the essential needs of the rural community such as fuel, timber, fodder fruits and other products traditionally derived from forests, as also organic matter. Special emphasis will be made to step up preservation of country's flora and fauna.[36]

During the Seventh Plan, existing fragile ecosystems will have to be maintained, and research in preserving our extraordinarily diverse and rich heritage of forests will be undertaken. Among the aims of such research would be how to increase the productivity of forest areas reducing costs and generally, improving the rural economy.

According to the Plan, forestry development to meet industrial raw material requirements has to be undertaken with appropriate policies for licensing, royalty payment and regeneration costs, so that such industries do not operate, as hitherto, at the cost of permanent damage to the ecology of large areas.[37]

The Plan further emphasises that grazing land should also be developed with priority given to identification, development and conservation of such lands and R&D directed towards evaluation of good quality grass and tree species based on regionwise suitability, so that destructive grazing encroachment on various lands is minimised. Systematic development and spread of cultivation of medicinal plants which play a significant role in the Indian system of medicine are being given special emphasis during the plan.

Moreover, in tribal areas, where the tribal economy revolves round forests and forest-based produce, the forestry-based programmes have to be so devised as to be in consonance with socio-economic fabric of tribal culture and ethos, and to strengthen the linkages between tribal development and the tribal and/or forest land with which they so closely identify themselves.[38] A statement showing the statewise and yearwise progress in afforestation (physically and financially) during the Seventh Five-Year Plan is given in Appendix 6.4. Also, some examples of people's participation in conservation is given in Appendix 6.5.

FORESTS AND WILDLIFE

While the maintenance of the country's basic biological productivity through proper land and water management is of vital ecological concern, the preservation of its genetic diversity and conservation of its species and ecosystems for

[36] Government of India: *The Approach to the Seventh Five-Year Plan*, 1984, p. 11.
[37] *Ibid.*
[38] *Ibid.*

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sustainable utilisation is of crucial importance for the future survival and development of our people.

However under the relentless pressures of an exploding population, and unplanned development of natural environments, the habitats of our species are being rapidly lost or modified. It is estimated that, world-wide, slightly over 1,000 animal species and sub-species known to science are threatened while 20,000 flowering plants are thought to be at risk. In India, five species of mammals and birds are known to have become extinct in the recent past while 103 such species are listed as endangered under the Wildlife (Protection) Act, 1972.[39] The threat to wildlife in India comes from indiscriminate hunting, snaring, etc. Tiger population which at one time was over a lakh has dwindled to hardly 4,000.[40]

Past history of India shows that wildlife has been destroyed by the rulers and their army or indirectly by the ruthless destruction of its habitat. The over-exploitation of forests during Second World War accelerated the destruction of the habitat of wildlife especially tigers, hunting cheetah, the pigmy hog, lipsid hare, white-winged wood duck, dugong, wild ass, and snow leopard.

To preserve the wildlife and also to create interest in wildlife preservation, a large number of preservation plots, wildlife sanctuaries, national parks and tiger reserves have been established in different parts of the country. At present there are 398 wildlife sanctuaries and 67 national parks, covering an area of 1,07,083.13 sq km and 33,988.14 sq km respectively.

Indian Board of Wildlife

During 1983–84, under the Chairmanship of late Prime Minister Smt. Indira Gandhi, Indian Board of Wildlife adopted 'National Wildlife Action Plan' and set up the task force on 'Eliciting Public Support For Wildlife Conservation.'

(a) National Wildlife Action Plan[41]

The National Wildlife Action Plan was finalised during 1983–84 and adopted after its unanimous endorsement by the Indian Board for Wildlife. The main components of the action plan are:

— Establishment of Protected Areas and Habitat Protected Areas.
— Management of Protected Areas and Habitat Restoration.
— Wildlife Protection in Multiple Use Areas.
— Rehabilitation of Endangered and Threatened Species.
— Captive Breeding Programmes.
— Wildlife Education and Interpretation.
— Research and Monitoring.
— Domestic Legislation and International Conventions.

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[39] *Sixth Five-Year Plan (1980–85)*, pp. 344–345.
[40] Sitaram Deo, *op. cit.*, pp. 36–37.
[41] Government of India: *Annual Report 1983–84 of Department of Environment*, p. 54.

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— National Conservation Strategy.
— Collaboration with Voluntary Bodies.

The action plan is a prospectus of action to be taken with regard to wildlife conservation in India in the coming years. Priority projects under each of the above identified areas have been indicated in the action plan. These are to be taken up within a time frame.

(b) Public Participation

The Task Force on "Eliciting Public Support for Wildlife Conservation" has made specific recommendations for rural development in areas surrounding wildlife reserves in the field of wildlife education. Another regular activity taken up in the field of enlisting public participation is the observance of the Wildlife Week in the first week of October every year. Exhibitions on the theme of wildlife conservation including posters and paintings, were organised during 1983–84 at various centres and special programmes were held in the National Zoological Park and the National Museum of Natural History.

Centrally Sponsored Scheme for Wildlife Conservation

In the Sixth and Seventh Five-Year Plans, the Government of India has launched a number of Centrally Sponsored Schemes to supplement the efforts of the State Governments for wildlife conservation. A resume of each Centrally Sponsored Scheme is given below:

Project Tiger

The Project Tiger Scheme was launched as a Centrally Sponsored Scheme on April 1, 1973. It is the first Centrally Sponsored Scheme for Wildlife Conservation in the country. Details regarding Project Tiger is given in Appendix 6.6.

Under the scheme, the existing pattern of financing is that 100 per cent Central assistance is given for non-recurrent works and 50 per cent on recurring items to Tiger Reserves. While the scheme started, there were nine Tiger Reserves, there are now 17 reserves covering an area of 26,643 sq km.

During the Seventh Five-Year Plan period the total outlay under the scheme is Rs. 1060 lakh out of which Rs. 1008 lakh have been spent in the first four years of the Plan period. It is expected that the Seventh Plan outlay would be exceeded by about Rs. 300 lakh.

In the Eighth Plan period the projected outlay under the Project Tiger Scheme is made at Rs. 5000 lakh.

Assistance to States for Development of National Parks

This scheme has been continued from the Sixth Plan. Under it, Central financial assistance is given to States for the development of those national parks which have been placed under the complete control of the States' Wildlife Wing. Funds are given on a 100 per cent basis for selected items of

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non-recurring expenditure and on 50 per cent basis for selected recurring items. However, funds for recurring expenditure in national parks were restricted to the snow-leopard area and marine national park in the Seventh Plan due to paucity of budgetary allocations.

In the Sixth Plan there was an allocation of Rs. 99 lakh under the scheme and this was raised to Rs. 260 lakh in the Seventh Plan. Because of the increase in the number of national parks, and the need to support recurring cost in them, the projected requirement of funds for national parks in the Eighth Plan has been made at Rs. 4000 lakh.

Assistance to States for Development of Sanctuaries

This scheme has also been continued from the Sixth Plan. Under it, Central financial assistance is given to States for the development of those sanctuaries which are under the complete control of the States' Wildlife Wing. Funds are given on a 100 per cent basis for selected items of non-recurring expenditure.

In the Sixth Plan there was a joint scheme for the development of sanctuaries and those national parks which were not covered under the National Parks Schemes and the allocation for the scheme was Rs. 400 lakh. However, in the Seventh Plan Rs. 360 lakh have been allocated only for the sanctuaries scheme. There has been a dramatic increase in the number of Wildlife sanctuaries, the figure having risen from a mere 60 in 1960 to 398 in 1989. Keeping this in view, the projected requirement of funds under the sanctuaries scheme in the Seventh Plan has been made at Rs. 5000 lakh.

Control of Poaching and Illegal Trade in Wildlife

This scheme was introduced in 1986–87 with the purpose of helping the States to develop and strengthen their outfits to counter poaching and illegal trade in wildlife products. Central assistance is given to States on approved non-recurring items on a 50 per cent basis with the recipient state contributing a matching share. The Seventh Plan outlay under the scheme is Rs. 110 lakh. In the Eighth Plan the scope of the scheme is proposed to be enhanced and the projected requirement of funds is made at Rs. 1000 lakh.

Wildlife Education and Interpretation Programmes

This scheme, also introduced in 1986–87, aims at helping States to develop infrastructure as well as educational programmes for involving people in wildlife conservation efforts. Funds are made available on 50:50 (equal cost sharing) basis for approved non-recurring expenditure. The Seventh Plan outlay of Rs. 110 lakh is proposed to be raised to Rs. 500 lakh in the Eighth Five-Year Plan.

Captive Breeding and Rehabilitation of Endangered Species

Introduced in 1986–87, the financial pattern is 50:50 equal cost sharing between the Centre and States. The Seventh Plan outlay of Rs. 110 lakh is earmarked for

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breeding in captivity of endangered and threatened species of fauna. The Eighth Plan outlay for the scheme is projected at Rs. 500 lakh and more stress would be laid also on the rehabilitation in the wild of captive bred stock.

Assistance to States for Development of Model Zoos

This scheme continuing from the Sixth Plan and, in the Seventh Plan, has an outlay of Rs. 160 lakh. Under it 50 per cent financial support is given to zoos. Only non-recurrent items are supported. In the Eighth Plan the scheme is proposed to include the aspect of captive breeding of endangered species and only certain identified zoos would be supported. The projected outlay for the Eighth Plan is at Rs. 1000 lakh.

Conservation of Rhinos in Assam

Alarmed at the steadily increasing poaching of the Indian one-horned rhino, endemic to Assam only, the Government of India in 1986–87 launched a Rs. 500 lakh Centrally Sponsored Scheme with a view to eliminating poaching and fully securing the existing and potential habitat of the species in Assam. In the Eighth Plan, the scheme is proposed to be continued with a similar outlay.[42]

National Wastelands Development Board

The National Wastelands Development Board was set up in May 1985 with the following main objectives:

(i) to increase tree and other green cover on wastelands;
(ii) to prevent good land from becoming wastelands; and
(iii) to formulate within the overall National Policy perspective, plans and programmes for the management and development of wastelands in the country.

The Board has been made the nodal agency to coordinate and monitor the Afforestation Programme under the 20-Point Programme being implemented through the States. Important activities/achievements of the Board are as follows.

Rural Fuelwood Plantation Scheme

The objective of the scheme, introduced in the Sixth Plan, was to take up fuelwood plantation in 157 districts which were considered chronically deficient in fuelwood, and thus make available fuelwood to the rural poor near their habitations. It involves raising of fast growing species, fodder and small timber—both in block plantation and farm forestry. It is a Centrally Sponsored Scheme with 50 per cent of the cost of plantation given as grants to the States and 100 per cent to the Union territories.

[42] Information received from the Ministry of Environment and Forests.

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Operation Soil Watch

The scheme was introduced in 1977–78 for treatment of identified catchments in micro-watersheds in the Himalayan States. The pattern of Central assistance is 50 per cent grants and 50 per cent loan to the State Governments. The objective of the scheme is to treat selected micro-watersheds in an integrated manner, involving mainly soil and moisture conservation measures, afforestation and pasture development besides stability to the fragile and vulnerable Himalayan ecosystem through water and soil conservation by adopting engineering as well as vegetative methods.

Identification and Mapping of Wastelands

Immediately after its establishment, the NWDB set up a Task Force to define and categorise the wastelands in the country. On the books of the report of the Task Force, submitted in 1986, a national Wastelands Identification Project was taken up with the collaboration of the National Remote Sensing Agency. Under this project, 146 districts in different States were selected for identifying and mapping of wastelands. This has led to the preparation of detailed wastelands maps for these 146 districts, which are now available for use. Detailed village level planning for integrated use and development of wastelands has now been undertaken.

Decentralised People's Nurseries

This is a new initiative introduced in 1986–87 and the main idea is to shift the emphasis from departmental nurseries to people's nurseries set up and run by private individuals or institutions, like small and marginal farmers, landless poor, schools, *mahila mandals*, youth groups, etc. It is hoped that this will be more economical as well as give a boost to afforestation activities. The scheme has taken off quite well in a number of States.

People's Participation and Voluntary Agencies

In order to develop wastelands through people's participation, a scheme of grant-in-aid to voluntary agencies has been introduced. The voluntary agencies are better placed in approaching the people and motivating them, training people in nursery raising and in organising plantation work. The scheme is drawn up to cover activities directly connected with afforestation. Grant-in-aid has been sanctioned for 220 projects involving 171 agencies upto 1987–88, with a financial commitment of Rs. 11.21 crore.

Tree Patta Scheme

In collaboration with the Department of Rural Development, a Tree Patta Scheme was recommended to the States which is now under implementation in seven States and approximately 5 lakh rural poor have benefited with usufruct rights to the trees planted on the tree patta lands.

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Tree Growers' Cooperatives

In order to encourage initiative among the people to plant trees, to make arrangements for processing and marketing of the produce in due course, a pilot scheme for tree growers' cooperatives has been introduced in collaboration with the National Dairy Development Board. Three such projects have been launched by the NDDB in the cooperative sector involving 64 cooperatives each on the Amul pattern. These cooperatives will be engaged in raising seedlings and promoting fuelwood and fodder production by setting up Kisan and Gram Vans.

Silvipastural Farms

This scheme was introduced in 1986–87. The objective of the scheme is to augment the production of good quality grass and fodder on Government, institutional, community and marginal/sub-marginal private lands for meeting the fodder needs in the country and thus by encouraging the stall feeding, reduce the grazing pressure on the country's limited forest wealth.

The scheme has been envisaged on a 50:50 basis between the States and the Centre, but the Central assistance is limited to a maximum of Rs. 1250 per hectare.

The scheme is based on people's participation. Gram Panchayats/Gram Sabhas are to be associated in creation, protection and maintenance of the grass/fodder forms on community lands. The technical support and inputs are provided by the State Forest Departments.

In terms of programme coverage, the performance of NWDB has been as given in Table 6.6.

Table 6.6
Performance of NWDB

Year	*1985–86*	*1986–87*	*1987–88*	*1988–89*
1. Afforestation/Tree planting (in million hectares)				
Targets:	1.45	1.71	1.79	2.00
Performance:	1.51	1.76	1.77	1.90
Achievement:	104.1%	102.9%	98.0%	95.0%
2. Expenditure in crores of rupees				
Outlays:	374.96	492.74	556.67	674.26
Actuals:	378.58	491.29	NA	NA

Thus, in the four years of the Seventh Five-Year Plan upto 1988–89, the total area coverage of the afforestation programme would be about 7.0 million ha. By the end of the Seventh Plan, this is likely to reach 10.0 million ha., as per the Plan target.[43]

[43] *Ibid.*

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PARLIAMENTARY COMMITTEE ON ENVIRONMENT AND FORESTS

In spite of frequent restoration efforts by the Government there has been widespread devastation of forests resulting in desertification of large areas. People continue to exploit the forests and neglect conservationist policies laid down by the Government. As a result almost half of the forests inherited by the country at the time of Independence have disappeared. Realising the potential danger of an ecological catastrophe and understanding the importance of maintaining the ecological balance and the protection of our environment, the Parliament of India established a Committee on Environment and Forests in 1989.

The Committee consists of 22 members of which 15 are from Lok Sabha and 7 from Rajya Sabha. The term of office of each member of the Committee is one year. The Committee will go into the implementation aspects of the forest policy of the Government. The expenditure incurred by the Ministry of Environment and Forests and the implementation of its programmes will also be examined by this Committee. The Committee will examine all matters connected with the Ministry of Environment and Forests and other allied Ministries as it may deem fit. It can report on what economies and improvements in organisation and efficiency or administrative reforms consistent with the policy approved by the Parliament may be effected. It can also examine such Plan projects and activities of the Ministry of Environment and Forests or allied Ministries as it may deem fit or specially referred to it by the House or the Speaker. The Committee shall evaluate and suggest measures for the survey and conservation of flora, fauna, forests and wildlife, prevention and control of pollution, afforestation and regeneration of the degraded parts of the environment.

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APPENDIX 6.1

Old Forest Policy, October 1894

Resolution. In Chapter VIII of his report on the improvement of Indian Agriculture, Dr. Voelcker dwells at length upon the importance of so directing the policy of the Forest Department that it shall serve agricultural interests more directly than at present; and in his Review of Forest Administration for 1892–93 the Inspector General of Forests discusses in some detail the principles which should underlie the management of State forests in British India, while agreeing, generally, with the principles thus enunciated by the Inspector-General of Forests, the Government of India thinks that it will be convenient to state here the general policy which they desire should be followed in this matter more especially as they are of opinion that an imperfect appreciation of that policy has, in some recent instances, been manifested.

2. The sole object with which State forests are administered is the public benefit. In some cases the public to be benefited are the whole body of tax-payers; in others, the people of the tract within which the forest is situated; but in almost all cases the constitution and preservation of a forest involve, in greater or less degree, the regulation of rights and the restriction of privileges of user in the forest area which may have previously been enjoyed by the inhabitants of its immediate neighbourhood. This regulation and restriction are justified only when the advantage to be gained by the public is great; and the cardinal principle to be observed is that the rights and privileges of individuals must be limited, otherwise than for their own benefit; only in such degree as is absolutely necessary to secure that advantage.

3. The forest of India, being State property, may be broadly classed under the following headings.

(a) Forests the preservation of which is essential on climatic or physical grounds.
(b) Forests which afford a supply of valuable timbers for commercial purposes.
(c) Minor forests.
(d) Pasture lands.

It is not intended that any attempt should be made to class existing State forests under one or other of these four heads. Some forests may occupy intermediate positions, and parts of one and the same forest may fall under different heads. The classification is useful only as affording a basis for the indication of the broad policy which should govern the treatment of each class, respectively; and, in applying the general policy, the fullest consideration must be given to local circumstances.

4. The first class of forests are generally situated on hill slopes where the preservation of such vegetation as exists, or the encouragement of further growth, is essential to the protection from the devastating action of hill

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torrents on the cultivated plains that lie below them. Here the interests to be protected are important beyond all comparison with the interests which it may be necessary to restrict; and so long as there is a reasonable hope of the restriction being effectual, the lesser interests must not be allowed to stand in the way.

5. The second class of State forests include the great tracts from which our supply of the more valuable timbers—teak, sal, deodar and the like—is obtained. They are for the most part (though not always) essentially forest tracts, and encumbered by very limited rights of user; and when this is the case, they should be managed mainly on commercial lines as valuable properties, and sources of revenue, to the State. Even in these cases, however, customs of user will for the most part have sprung up on the margins of the forest; this user is often essential to the prosperity of the people who have enjoyed it; and the fact that its extent is limited in comparison with the area under forest renders it the more easy to continue it in full. The needs of communities dwelling on the margins of forest tracts consist mainly in small timber for building, wood for fuel, leaves for manure and for fodder, thorns for fencing, grass and grazing for their cattle and edible forest products for their own consumption. Every reasonable facility should be afforded to the people concerned for the full and easy satisfaction of these needs, if not free (as may be possible where a system of regular cuttings has been established), then at low and not at competitive rates. It should be distinctly understood that considerations of forest income are to be subordinated to that satisfaction.

There is reason to believe that the area which is suitable to the growth of valuable timber has been over-estimated, and that some of the tracts which have been reserved for this purpose might have been managed with greater profit both to the public and to the State, if the efforts of the Forest Department had been directed to supplying the large demand of the agricultural and general population for small timber rather than the limited demand for merchants for large timber. Even in tracts of which the conditions are suited to the growth of large timber it should be carefully considered in each case whether it would not be better, both in the interests of the people and of the revenue, to work them with the object of supplying the requirements of the general, and in particular of the agricultural, population.

6. It should also be remembered that, subject to certain conditions to be referred to presently, the claims of cultivation are stronger than the claims of forest preservation. The pressure of the population upon the soil is one of the greatest difficulties that India has to face, and that application of the soil must generally be preferred which will support the largest numbers in proportion to the area. Accordingly, wherever an effective demand for cultivable land exists and can only be supplied from forest areas, the land should ordinarily be relinquished without hesitation: and if this principle applies to the valuable class of forests under consideration, it applies *a fortiori* to the less valuable classes which are presently to be discussed. When cultivation has been established, it will generally be advisable to disforest the newly-settled area. But it

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should be distinctly understood that there is nothing in the Forest Act, or in any rules or orders now in force, which limits the discretion of Local Governments, without previous reference to the Government of India (though, of course, always subject to the control of that Government) in diverting forest land to agricultural purposes even though that land may have been declared reserved forest under the Act.

7. Mention has been made of certain conditions to which the application of the principle laid down in the preceding paragraph should be subject. They have for their object the utilisation of the forest area to the greatest good of the community. In the first place, the honey-combing of a valuable forest by patches of cultivation should not be allowed; as the only object it can serve is to substitute somewhat better land in patches for sufficiently good land in large blocks, while it renders the proper preservation of the remaining forest area almost impossible. The evil here is greater than the good. In the second place the cultivation must be permanent. Where the physical conditions are such that the removal of the protection afforded by forest growth must result, after a longer or shorter period, in the sterilisation or destruction of the soil, the case falls under the principle discussed in paragraph 4 of this Resolution. So, again, a system of shifting cultivation, which denudes a large area of forest growth in order to place a small area under crops, costs more to the community than it is worth, can only be permitted, under due regulation, where forest tribes depend on it for their subsistence. In the third place, the cultivation in question must not be merely nominal, and an excuse for the creation of pastoral or semi-pastoral villages, which do more harm to the forest than the good they reap from it. And, in the fourth place, cultivation must not be allowed so to extend as to encroach upon the minimum area of forest which is needed in order to supply the general forest needs of the country, or the reasonable forest requirements, present and prospective of the neighbourhood in which it is situated. In many tracts cultivation is practically impossible without the assistance of forests, and it must not be allowed to destroy that upon which its existence depends.

8. It has been stated above that the forests under consideration are generally, but not always, free from customs of user. When, as sometimes happens, they are so intermingled with permanent villages and cultivation that customary rights and privileges militate against their management as revenue-paying properties, the principles laid down at the end of paragraph 5 of this Resolution should be observed, and considerations of income should be made secondary to the full satisfaction of local needs. Such restrictions as may be necessary for the preservation of the forest, or for the better enjoyment of its benefits, should be imposed; but no restriction should be placed upon reasonable local demands, merely in order to increase the State revenues.

9. The third class of forests include those tracts which, though true forests, produce only the inferior sorts of timber, or the smaller growths of the better sorts. In some cases the supply of fuel for manufacturers, railways, and like purposes, is of such importance that these forests fall more properly under the

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second class, and must be mainly managed as commercial undertakings. But the forests now to be considered are those which are useful chiefly as supplying fuel and fodder or grazing for local consumption; and these must be managed mainly in the interests of the population of the tract which supplied its forest requirements from this source. The first object to be aimed at is to preserve the wood and grass from destruction; for the user must not be exercised so as to annihilate its subject, and the people must be protected against their own improvidence. The second object should be to supply the produce of the forests to the greatest advantage and convenience of the people. To these object all consideration of revenue should ordinarily be subordinated.

10. It must not be supposed from the preceding remarks that it is the intention of the Government of India to forego all revenue from the large areas that are valuable chiefly for the fuel and fodder which they yield. Cases must be distinguished. Where the areas in question afford the only grazing and the only supply of fuel to villages which lie around or within them, the necessities of the inhabitants of these villages must be treated as paramount, and they should be satisfied at the most moderate rates and with as little direct official interference as possible. But where the villages of the tract have already ample pasture ground attached to their cultivation and owned and managed by themselves and where the Crown lands merely supplement these pastures, and afford grazing to a nomad pastoral population, or to the herds that shift from one portion of the country to another with the changes of the season, Government may justly expect to reap a fair income from its property. Even in such cases, however, the convenience and advantage of the graziers should be studiously considered, and the inhabitants of the locality, or those who habitually graze over it, should have a preferential claim at rates materially lower than might be obtained in the open market. It will often be advantageous to fix the grazing demand upon a village or a nomad community for a year or a term of years. The system, like every other, has difficulties that are peculiar to it; but it reduces the interference of petty officials to the lowest point, and minimises their opportunities for extortion and oppression. Where grazing fees are levied per capita, free passes are often given to a certain number of cattle. In such cases the cattle which are to graze free should include, not only the oxen which are actually employed on the plough, but also a reasonable number of milch cattle and calves. A cow or a buffalo is as much a necessity to a cultivator using the word necessity in a reasonably wide sense, as is a plough-bullock; and in many parts the oxen are bred in the village.

11. In the portions of his report which are referred to in the preamble to this Resolution, Dr. Voelcker strongly recommends the formation of fuel and fodder preserves, and the Government of India has repeatedly urged the same policy upon Local Governments. The question whether any particular area can be made to support a greater number of cattle by preserving the grass and cutting it for fodder, or by permitting grazing upon it is one that must be decided by the local circumstances of each case. But when it has been decided, the issues are by no means exhausted. It has been stated in para 9 above that one main

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object towards which the management of these minor forests should be directed is, the supply of fuel and fodder "to the greatest advantage and convenience of the people." In doing so, due regard must be had to their habits and wishes. It may be that strict preservation and periodical closure, or the total prohibition of grazing, will result in the largest yield both of fuel and fodder in the form of hay. But that is of small avail if the people will not utilise the increased supply in the form in which it is offered to them. The customs of generations alter slowly in India; and though much may and should be done to lead the people to their own profit, yet it must be done gently and gradually—always remembering that their contentment is no less important an object than is their material advantage. It must be remembered, moreover that the object of excluding grazing from the preserves in question is the advantage of the neighbourhood; and that the realisation of a larger income than grazing would yield, by preserving the produce, only to sell it to the highest bidder for consumption in large towns at a distance from the preserve, is not always in accordance with the policy which the Government of India have inculcated. Here again circumstances must decide. It may be that the local supply of fuel or fodder, independently of the reserved area, is sufficient in ordinary years for the needs of the neighbourhood. In such a case the produce may legitimately be disposed of in such years to the greatest advantage, reserving it for local consumption only when the external supply runs short. Finally, the remarks regarding agency in para 12, and the more general considerations that are discussed below in para 13 of this Resolution, apply in full force to areas thus reserved for the supply of fuel and fodder.

12. The fourth class of forests referred to are pastures and grazing grounds proper, which are usually forests only in name. It is often convenient, indeed, to declare them forests under the Act, in order to obtain a statutory settlement of the rights which the State on the one hand, and private individuals or communities on the other, poses over them. But it by no means follows as a matter of course that these lands should be subjected to any strict system of conservation, or that they should be placed under the management of the Forest Department. The question of agency is purely one of economy and expediency; and the Government of India believes that in some cases where these lands are managed by the Forest Department, the expenditure on establishment exceeds the revenue that is, or at any rate the revenue that ought to be, realised from them.

The following remarks apply, not only to forest lands under the Act, whether administered by the Forest Department or not, but also to all Crown waste, even though not declared to be forest. Here the interests of the local community reach their maximum, while those of the general public are of the slightest nature. It follows that the principles which have been already laid down for the management of minor forests apply, if possible, with even greater force to the management of grazing areas, pure and simple.

13. The difficulties which arise in connection with these areas are apt to present themselves in their most aggravated form where the tenure of land is

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ryotwari. In zamindari tracts the Crown lands generally assume the second of the two forms indicated in para 10 of this Resolution. But where the settlement is ryotwari every survey number of field that is unoccupied or unassigned is in the possession and at the disposal of the Government, and trespass upon it is *prima facie* forbidden. In some cultivated tracts these unoccupied and waste-lands are the only source available from which the grazing requirements of the resident population can be met. The Government of India are clearly of opinion that the inter-mixture of plots of Government land which are used for grazing only, but upon which trespass is forbidden, with the cultivation of occupancy or proprietary holders, is apt to lead to extreme abuses and especially so when these plots are under the management of the Forest Department. The inferior subordinates of the Forest Department are perhaps as reliable as can be expected on the pay which we can afford to give; but their morality is no higher than that of the uneducated classes from which they are drawn; while the enormous areas over which they are scattered and the small number of the controlling staff render effective supervision most difficult. It is not right, in order to protect the grass or the grazing dues on plots of waste scattered over the faces of a cultivated district, to put it into the power of an underling to pound, or threaten to pound, cattle on the plea that they have overstepped the boundary between their owner's field and the next. Still less right is it to permit the exercise of the power of compounding offences allowed by section 67 of the Forest Act to depend upon the mere report of a subordinate servant, or to expose him to the temptations which such a power holds out. Where the interests involved are sufficiently important, it may perhaps be necessary to accept the danger of extortion while minimising as far as possible the opportunities for it. But in the case under consideration the interests involved are trifling, while the opportunities are unlimited.

14. It is to be distinctly understood that the Government of India do not desire that grazing should be looked upon primarily as a source of income. But it by no means follows that all revenues from scattered Government lands should be relinquished. It is, indeed inadvisable that this should be done as to do so would give the raiyats an interest in opposing allotment and making things unpleasant for new occupants. But the objections to direct management which have just been pointed out are reduced to a minimum or altogether avoided, when the management is placed in the hands of the resident cultivators or of representatives from among them. It will generally be possible to lease or otherwise manage the unoccupied lands of a village through the agency of the community not, indeed, at the highest price which they are ready to pay to escape such evils as have just been alluded to; but at a moderate estimate of their value to them fixed in view of the fact that herds and flocks which cannot exist without grazing, are often a necessary condition of the successful conduct of that cultivation upon which the Government land-revenue is paid. In no case should fields that have been relinquished be let to outsiders at a reduced assessment for grazing purposes for then we might have speculators taking up such fields, mainly in order to make what they can out of trespassing cattle.

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15. One more point of principle remains to be noticed. The procedure under Chapter IV of the Indian Forest Act, whereby forests are declared to be protected, has been in certain cases regarded by the Government of India as a provisional and intermediate procedure designed to afford time for consideration and decision with the object of ultimately constituting so much of the area as it is intended to retain, a reserved forest under Chapter II and of relinquishing the remainder altogether. The act provides two distinct procedures. By the more strict one under Chapter II existing rights may be either settled, transferred, or communicated and this procedure will ordinarily be applied to forests of the first and second classes indicated in para 3 of this Resolution. By the second procedure under Chapter IV rights are recorded and regulated and this procedure will often be properly followed where the rights to which the area is subject are extensive and the forest is to be managed mainly in the interests of the local community. It will ordinarily be applied to forests of the third and fourth classes. This second procedure may indeed be provisional, and introductory to reservation under Chapter II, but there is in the Forest Act nothing repugnant to giving it a larger and even a permanent operation. As regards Government the chief difference between the two procedures is that new rights may spring up in a protected but not in a reserved forest, and that the record-of-rights framed under Chapter II is conclusive while that framed under Chapter IV only carries a presumption of truth. It is believed that this presumption offers ample security where the object of regulating the rights is to provide for their more beneficial exercise rather than to override them in the public interest. As regards the people the chief difference is that, speaking broadly, in a reserved forest everything is an offence that is not permitted, while in a protected forest nothing is an offence that is not prohibited. In theory it is possible so to frame the permission and the prohibition as to make the results identical in the two cases but in practice it is almost impossible to do so. If it were not so, the distinction drawn by the Legislature would be unnecessary and meaningless. It is only where the public interests involved are of sufficient importance to justify the stricter procedure and the more comprehensive definition of forest offences that the latter should be adopted.

16. The Governor-General in Council desires, therefore, that with regard both to fuel and fodder preserves and to grazing areas pure and simple, and specially to such of them as lie in the midst of cultivated tracts, it may be considered in each case whether it is necessary to class them, or if already so classed to retain them as forest area; and if this question is decided in the affirmative, whether it would not be better to constitute them protected rather than reserved forests.

17. Such are the general principles which the Government of India desires should be observed in the administration of all State forests in British India. They are fully aware that the detailed application of these principles must depend upon an infinite variety of circumstances which will have to be duly weighed in each case by the local authorities, to whose discretion the decision must be left. One of the dangers which it is most difficult to guard against is the

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fraudulent abuse of concessions for commercial purposes, and only local considerations can indicate how this can best convert. The Government of India recognises the fact that the easier treatment in the matter of forest produce which His Excellency in Council desires should be extended to the agricultural classes may, especially in the case of true forest areas, necessitate more careful supervision in order that the concession may be confined within its legitimate limits. But, on the other hand, they think that in some provinces it will render possible a considerable reduction of existing establishment and they desire that this matter may be carefully considered with reference to what has been said above in paragraph 12. They know also in some provinces forest policy is already framed on the lines which they wish to see followed, in all. But the Governor-General in Council believes that Local Governments and Administrations will be glad to receive the assurance now given them that the Supreme Government will cordially support them in recognising and providing for local requirements to the utmost point that is consistent with Imperial interests. Where working-plans or plans of operation are framed for forests the provisions necessary for this purpose should be embodied in them. The exercise of the rights that have been recorded at settlement will necessarily be provided for in these plans. Where further concessions are made by the way of privilege and grace, it will be well to grant them for some such limited period as ten years, so that they may, if necessary, be revised from time to time as the circumstances on which they were moulded change.

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APPENDIX 6.2

National Forest Policy, May 1952

Introduction

No. 13-1 52-F. In their Resolution No. 22-F., dated October 19, 1894, the Government of India in the late Department of Revenue and Agriculture enunciated in broad outlines the general policy to be followed in the management of State forests in the country. During the interval that has since elapsed, developments of far-reaching importance have taken place in the economic and political fields. The part played by forests in maintaining the physical conditions in the country has come to be better understood. The country has passed through two world wars which disclosed unsuspected dependence of defence on forests. The reconstruction schemes, such as river-valley projects, development of industries and communications lean heavily on the produce of forests.

2. While the fundamental concepts underlying the existing forest policy still hold good, the Government of India considers that the need has now arisen for a re-orientation of the forest policy in the light of the changes which have taken place since it was enunciated.

3. *Vital National Needs.* The National Forest Policy of India is formulated on the basis of six paramount needs of the country namely:

(1) the need for evolving a system of balanced and complementary land-use, under which each type of land is allotted to that form of use under which it would produce most and deteriorate least;

(2) the need for checking;

  (a) denudation in mountainous regions, on which depends the perennial water supply of the river systems whose basins constitute the fertile core of the country;

  (b) the erosion progressing a pace along the treeless banks of the great rivers leading to ravine formation and on vast stretches of undulating wastelands depriving the adjoining fields of their fertility;

  (c) the invasion of sea-sands on coastal tracts, and the shifting of sand-dunes, more particularly in the Rajputana desert;

(3) the need for establishing treelands, wherever possible, for the amelioration of physical and climatic conditions promoting the general well being of the people;

(4) the need for ensuring progressively increasing supplies of grazing, small wood for agricultural implements, and in particular of firewood to release the cattledung for manure to step up food production;

(5) the need for sustained supply of timber and other forest produce required for defence communications and industry;

(6) the need for the realisation of the maximum annual revenue in perpetuity consistent with the fulfilment of the needs enumerated above.

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These vital needs indicate the functions forests are to fulfil, and provide the fundamental basis of the policy governing their future.

4. *Functional Classification of Forests.* Having regard to the functions afforestated, the forests of India, whether State or privately owned, may be conveniently classified as follows:

(A) *Protection forests,* i.e., those forests which must be preserved or created for physical and climatic considerations;

(B) *National forests,* i.e., those which have to be maintained and managed to meet the needs of defence, communications industry and other general purposes of public importance;

(C) *Village forests,* i.e., those which have to be maintained to provide firewood to release cowdung for manure and to yield small timber for agricultural implements and other forest produce for local requirements, and to provide grazing for cattle;

(D) *Treelands,* i.e., those areas which though outside the scope of the ordinary forest management are essential for the amelioration of the physical conditions of the country.

This classification is merely illustrative and is by no means mutually exclusive. In fact every forest performs more than one function, and has, therefore, to be so managed as to achieve the highest efficiency in respect of the chief functions assigned to it. This functional classification has also no bearing on the classification of forests distinguished in the Indian Forest Act XVI of 1927, which is based on the degree of control exercisable in them.

5. *Necessity of Classification.* This broad functional classification of forests is necessary to focus attention on the kind and object of management necessary in each case. Every sizeable forest, whatever its composition, location, or category, serves both a protective and a productive purpose, and in its utility may be of local, regional, or national significance. The fact, however, must be realised that the country as a whole has a vast stake in the conservation of all forests, irrespective of their functions and ownership, and, therefore, all of them should be administered from the point of view of national well-being.

6. *Two Possible Considerations.* Two considerations, plausible, no doubt, at first sight, but if given undue weight to, destructive of national well-being in the long run, should be combated. They are:

(1) Neighbouring areas are entitled to a prior claim over a forest and its produce.

(2) Agricultural requirement has a preferential claim over forest lands.

7. *Claims of Neighbouring Communities.* Village communities in the neighbourhood of a forest will naturally make greater use of its products for the satisfaction of their domestic and agricultural needs. Such use, however, should in no event be permitted at the cost of national interests. The accident of a village being situated close to a forest does not prejudice the right of the

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country as a whole to receive the benefits of a national asset. The scientific conservation of a forest inevitably involves the regulation of rights and the restriction of the privileges of user, depending upon the value and importance of the forest, however irksome such restraint may be to the neighbouring areas. The Himalayan forests, for instance, are the greatest of national assets: to them we owe the richness of the country. The denudation and underdevelopment of the Himalayan slopes leads to greater intensity and frequency of floods, recurrent erosion, and to coarse detritus being deposited on the fertile submontane tracts. This process inflicts immeasurable loss and misery on the unsuspecting millions in the Indo-Gangetic Plain, and brings about a progressive and permanent impairment of soil fertility, and a cumulative reduction in the agricultural potential of the whole land. While therefore, the needs of the local population must be met to a reasonable extent, national interests should not be sacrificed because they are not directly discernible, nor should the rights and interests of future generations be subordinated to the improvidence of the present generation.

8. *Relinquishment of Forest Land for Agricultural Purposes.* The indiscriminate extension of agriculture and consequent destruction of forests have not only deprived the local population of fuel and timber, but have also stripped the land of its natural defences against dust-storms, hot desiccating winds, and erosion. The old policy, which envisaged the relinquishment subject to certain safeguards honoured only in their breach, of even valuable forest land for permanent cultivation, has resulted in general deterioration of physical conditions to the detriment of national interests, and must, therefore, be given up. In the abstract, the claims of agriculture undoubtedly appear stronger than those of forestry. The notion widely entertained that forestry, as such, has no intrinsic right to land but may be permitted on sufferance on residual land not required for any other purpose, has to be combated. The role of forests in the national economy, both protective and productive, entitles forests to lay claim to an adequate share of land. The importance of treelands in the rural economy of this region where agriculture constitutes the mainstay of the vast bulk of population can scarcely be over-emphasised.

9. *Land Use.* The correct solution of the land problem is to evolve a system of balanced and complementary landuse, under which each type of land is allotted to that form of use under which it would produce most and deteriorate least. A detailed survey of lands with a view to their proper utilisation is, therefore, highly desirable.

10. *Protection Forests.* 'Protection forests' denote forests found, or required, on hill slopes, river banks, sea-shores, or other erodable localities. In such sites, the need for forest cover is dictated by purely protective physical considerations, such as prevention of erosion, conservation of moisture, and control of rushing torrents and floods. The role of such forests in saving the soil from being washed away, and when maintained in catchment areas, in the prevention of floods and maintenance of stream-flow, cannot be over-emphasised on flat

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country with loose sandy soil, especially under dry conditions, forests, whether natural or artificial, perform an essential function in minimising wind erosion, fixing the soil and preventing the formation of sand-dunes, and mitigating the desiccation of agricultural crops leeward of the tree cover. The National Forest Policy requires, therefore, an immediate and speedy programme for the reconditioning of the mountainous regions, river valleys and coastal lands by establishing protective forests over larger areas, and preserving the existing ones. The primary object of management of such forests should be to utilise in full their protective influence on the soil, the water regime, and the physical and climatic factors of the locality; and the interests to be thus protected should far outweigh those which it may be necessary to restrict. The scientific management of such 'protection forests', wherever possible, should include the production and exploitation of timber within the limits of safety.

11. *Reconditioning of Hills and Dales.* The progressive denudation of hillsides with serious repercussions on the fertility of the land, and the growing erosion along the banks of rivers, of which the Yamuna, the Chambal, the Mahi, the Narmada, the Kosi, and the Damodar are notorious examples, constitute the major considerations demanding immediate attention.

12. *The Immobilisation of the Desert of Rajputana.* Attention also needs to be drawn here to the Rajputana desert, more particularly to the fixation of the shifting sand-dunes. Strong winds that develop in this region during the summer, transport vast quantities of sand and salt from the sea and Runn of Cutch, whipping the desert into terrific dust storms, the fury of which is felt throughout the north-western India. The desert has spread through the ages causing the 'westering' of the Indus and the 'northering' of the Sutlej, meeting an obstruction of sorts only along its eastern confines in the Aravallis. The immobilisation of the desert and protection of the remaining fertile belts inside it constitutes one of the planks of the National Forest Policy.

13. *National Forests.* 'National forests' constitute the basis of India's strength and wealth; for they comprise valuable timber bearing regions the produce of which is indispensable for defence, communications and vital industries. They have to be managed chiefly in the interest of the nation as a whole, and their organisation and development is one of the most important function of the States. Their management on scientific and business lines is essential for maintaining a sustained supply of wood for industry and of large timbers for defence, communications and other national purposes. The basic policy, so far as such forests are concerned, must be to attain national self-sufficiency in these vital supplies. Future development should, therefore, be directed to that end. Cultivation should not be permitted to encroach upon these valuable timber bearing tracts. The solution of the food problem of an ever-increasing population must be sought primarily in intensive cultivation and not in weakening the very basis of national existence by encroaching upon such forests.

14. *Village Forests.* 'Village forests', popularly termed fuel forests, are

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intended, in the main, to serve the needs of the surrounding villages in respect of small timber for housing and agricultural implements, firewood, leaves for manure and fodder, fencing thorns, grazing and edible forest products. The supply for such requirements should be made available at non-competitive rates, provided they are utilised by the villagers themselves and not traded in. The management of such village forests should aim at meeting the present as well as the future needs of the local population. Removal of the produce in excess of its annual growth should not, therefore, be permitted. Restrictions should be imposed in the interests not only of the existing generation but also of posterity. These considerations render the entrusting of the management of village forests to *panchayats*, without appropriate safeguards, a hazardous undertaking as has been demonstrated in some of the States. The cooperation of *panchayats* should be enlisted in the protection and creation of village forests, and in the distribution of forest produce assigned to meet the needs of the local population, but not at the cost of economy and efficiency. While the profit motive in the management of these forests should be relegated to the background, there is no justification for allowing them to become a burden on the general tax-payers; the expenses for development and maintenance of such forests must come from their own income.

15. *Treelands.* Although 'treelands' are not part of regular forests, in a country like India where their increase, management and development are vital to the needs of the people, they cannot well be left out of any well-considered policy. The Land Transformation Programme of the Government of India envisages the planting of 30 crores of trees in ten years: but this number is very far from about 2,000 crores of trees, which would be necessary to restore the hydrological nutritional balance of the country. The creation of forests by State Forest Departments on such an elaborate scale is ruled out at present by lack of funds and trained personnel. The only way in which some progress can be achieved is by making the whole nation 'tree conscious'. Such consciousness will stimulate private efforts at tree planting as has been demonstrated by the success of the *National Vana Mahotsava* movement. It will also arrest the vandalism which feels no scruples in cutting down valuable trees, and create among the populace an urge to secure the protection of trees—a virtue as much to be desired as it is rare.

16. *Scope for Increasing Treelands.* State Governments have a vast sum for an all-round increase in the area under treelands. Defence, Railways, Public Works Departments, Universities and Colleges, District Boards, Municipalities and other local authorities, associations and institutions can lend a helping hand by converting the lands at their disposal into treelands. The new Forest Policy, therefore, envisages a concerted and supreme effort on the part of the various Governments and other agencies towards planned afforestation with a view to the enlargement of treelands. The exploration of the possibilities of such a development by the Central/State Government is clearly indicated. A systematic programme of extending existing treelands and establishing new

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ones should be framed by the Governments concerned. Under the new Policy, it should be the duty of the Forest Departments concerned:

(a) to awaken the interest of the authorities within their region in the development, extension, and establishment of treelands;
(b) to draw up plans for such purposes bearing in mind the need for species of commercial importance;
(c) to establish nurseries and seed stores in each area for the supply of saplings, plants and seeds;
(d) to supervise the planting of trees, and render such technical assistance as may be necessary for the development of treelands; and
(e) to arouse tree consciousness among the people by publicity, by celebrating the Vana Mahotsava, and by encouraging the Vana Premi Sangh.

17. *Treelands in Agricultural Areas.* The importance of treelands in the rural economy of the regions where agriculture constitutes the mainstay of the vast bulk of the population cannot be overemphasised. Experience gained during the first two Vana Mahotsavas indicated a very considerable response in the countryside, where Government officers had prepared the ground and created the necessary enthusiasm among the people. A campaign inducing villagers to plant trees in village commons and along roadsides, on the condition that they would enjoy the benefit of the fruits, timber, and other produce of trees planted by them has yielded excellent results and is well worth an extended trial. The essence of success in such ventures lies in invoking the willing cooperation of the local villagers, the necessary technical guidance and help being furnished by the Forest and other Departments. In most localities, a cultivator has no land to utilise for raising trees; there is, however, nothing to prevent him from growing at least a few trees per acre on his own field. Much useful work in this direction has been done in the western district of Uttar Pradesh where cultivators have raised a fair amount of *babul* (Acacia arabica) in their fields. Other species may prove to be of equal utility in other regions.

18. *Control of Private Forests.* The ownership of private forests in States where they still exist vests in individuals. Such ownership must, however, be regulated in the national interests so that the indiscriminate exercise of individual rights may not prejudice, or endanger, general welfare. Regulation and control of private forests by the State on physical, climatic, and economic grounds is, therefore, imperative. Recent legislation in various States has assumed the following pattern:

(1) Owners of private forests should, in the first instance, be given an opportunity to manage their forests in accordance with an approved working plan.
(2) In the case only of recalcitrant owners, who are tempted to sacrifice their capital for immediate gain, should the management of their forests be made to vest in Government by due process of law.
(3) The ownership of such 'vested forests' should remain, however, unaffected;

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and the transfer should relate only to management, the net profits arising therefrom, if any, accruing to the owner.

The object of the legislative measures outlined above stand in grave risk of being defeated by the tendency discernible among owners of private forests to cash in their assets by excessive exploitation of forests for personal ends. In order to arrest such destruction of forests, the national forest policy requires that their control and management should be strictly regulated, and where that cannot be done, they should be taken over by the State Governments by effective legislation.

19. *Proportion of Forest Areas.* The proportion of land to be kept permanently under forests would naturally vary in different regions. Practical consideration suggests, however, that India, as a whole, should aim at maintaining one-third of its total land area under forests. As an insurance against denudation a much larger percentage of the land, about 60 per cent should be kept under forests for their protective functions in the Himalayas, the Deccan, and other mountainous tracts liable to erosion. In the plains, where the ground is flat and erosion is normally not a serious factor, the proportion to be attained should be placed at 20 per cent; and in view of the pressure of agriculture, effort at the extension of treelands should be concentrated in river banks and other convenient places not suitable for agriculture. At the same time it must be realised that even distribution of forests in all physical regions is as important as its overall proportion. In certain localities deficient in forests, therefore, afforestation of marginal lands, and eroded river and village wastelands, should be undertaken. Forest area in excess of the indicated proportion, if any, should, however, not be sacrificed. To maintain an overall average, it is essential that States better suited for the growth of trees should help to make good the deficiency in those parts where climatic and edaphic factors militate against tree-growth.

20. *Wild Life.* The National Forest Policy emphasises the need for affording protection to the animal kingdom and particularly to rare species such as the lion and the great one-horned rhinoceros, which are fast disappearing. While the damage caused by such predators as wild pigs, game and porcupine cannot be denied, the elimination of their natural enemies tends to multiply them. It is necessary, therefore, that bird and animal life should be controlled by special laws and rare fauna preserved by setting up sanctuaries and large-scale national parks. For this purpose, a Central Board for Wildlife has been constituted by the Government of India in the Ministry of Food and Agriculture Resolution No. 7-110/51-F, dated April 4, 1952.

21. *Grazing.* The controversial question of grazing in State forests calls for a clear definition of policy. Speaking generally, all grazing in forests, particularly unlimited or uncontrolled grazing, is incompatible with scientific forestry. At the same time, grazing does take place in forests and must be accepted as a hard fact. There are indeed circumstances in many regions where a moderate

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amount of grazing does little direct harm, and may even do a great deal of indirect good in reducing the risk of fire and in suspending regression at a desirable stage. But efficient forest management requires that grazing should be regulated as regards the time and place, as also the number of cattle admitted. The formulation of the grazing policy should be based on the following cardinal principles:

(a) Continuous grazing on the same areas by large herds is destructive of the better strains of grasses and leads to a deterioration of the grass complex. Wherever it is permitted and is in great demand, efforts should be made to introduce rotational grazing, the benefits of which should be explained and demonstrated to the villagers.

(b) Cheap forest grazing has a demoralising effect and leads to the vicious spiral of reckless increase in the number of cattle, in adequate forest grazing, reduced quality of the herds and further increase in the numbers to offset the fall in quality. Free and indiscriminate forest grazing is, therefore, a serious disservice to cattle breeding. The notion that a farmer's wealth must be reckoned in terms of the number of cattle he owns, regardless of quality, is one of the causes of India's uneconomic cattle wealth and must be combated.

(c) Grazing should not be looked upon primarily as a source of revenue. But the simple and obvious way of regulating and controlling grazing as also improving the quality both of grazing and cattle themselves, is to institute a reasonable fee for the privilege of grazing.

(d) Grazing must not be allowed in regeneration areas and young plantations during such periods as the seedlings require for establishment; otherwise they stand in danger of being browsed or trampled upon.

(e) Grazing incidence should be kept at a minimum in 'Protection Forests'

22. *Sheep and Goats.* Experience gained in India and elsewhere points to the imposition of restrictions on sheep grazing in forests, and the total exclusion of goats therefrom. The damage to young plants caused by the browsing of these animals is often irreparable, and their admission into the forest is incompatible with the aims and objects of forest management. The creation of special fodder reserves under strict rotational control is indicated for the purposes.

23. *Shifting Cultivation.* The damage caused to forests by shifting cultivation in certain areas must be guarded against. To wean the aborigines, who eke out a precarious living from axe-cultivation moving from area to area, away from their age-old and wasteful practices, requires persuasion, not coercion a missionary, not an authoritarian approach. Possibilities of regulating shifting cultivation by combining it with forest regeneration (*Toungya*) to the benefit of both should be fully explored. Success in this direction largely depends on enlisting the cooperation of the cultivators and gaining their confidence and in showing consideration to their needs and wishes.

24. *Sustained Yields.* With a view to conserving forests resources in perpetuity,

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the new forest policy requires scrupulous regard for sustained yield in the management of all classes of forests. The fluctuations in the annual outturn of forests upset State budgets, industries, and other national enterprises, all working plans, therefore, should aim at confining them within the narrowest limits. This aspect assumes even greater significance in case where private owners manage their own forests. The cultivation of all sound working plans, therefore, requires:

(a) the calculation of increment so that what is annually put on is annually cut, leaving the original assets intact or improved;
(b) the preparation of maps, and investigations on the propagation and tending of various species, their increment, the optimum conditions of their growth and the regulation of yield;
(c) carefully planned afforestation schemes to replace inferior tree growth by valuable species of commercial importance.

Each State, therefore, should set up a permanent organisation to deal with working plans—their compilation, and revision and deviations from them, research and statistics, as well as to conduct detailed surveys of available forest resources which are a *sine qua non* for a sound forest management.

25. *Forest Administration.* The efficiency of forest administration depends directly on the adequacy of the forest laws, the training and calibre of the professional forest services, and the progress of research on both the biological and the utilisation aspects of forestry.

26. *Forest Legislation.* So far as forests under the control of the Central Government and of Part A States are concerned, adequate forest legislation exists in the Indian Forest Act and the Madras Forest Act. In some of the Part B States, there are forest regulations having the force of law. But there are some Part C States where forest laws do not exist. It is necessary, therefore, that States without a proper Forest Act should enact legislation at an early date on the lines of the Indian Forest Act, or validate that Act for their territory. Several States have already enacted legislation for the control of private forests; it is desirable that States which have no such laws should enact them early. While framing legislation for private forests, States should not overlook the need for providing adequate staff for enforcing its provisions.

27. *Forest Education.* Forestry courses are at present conducted for Forest Rangers and Superior Forest Officers at the Forest Research Institute and the colleges. The States would be well-advised to continue taking advantage of the facilities provided by the Central Government at Dehra Dun, associated with the well-equipped Forest Research Institute, which enjoys a world-wide reputation. A common forest education is a very effective means of inculcating an *esprit de corps* among forest officers, of developing a common outlook in forestry matters; and of ensuring concerted and integrated policies throughout the country. Opening in the profession of forestry being limited, the decentralisation of forest education will militate against economy and efficiency, encourage

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fissiparous tendencies, create unemployment, and render planned development of forest resources difficult.

28. *Training of Field Staff.* Attention has also to be directed to the proper training of lower executive staff on whose technical skill ultimately depends the proper execution of forest schemes and their extension. The tendency to start schools which are not properly equipped should be discouraged. It is necessary that contiguous States should combine and cooperate in establishing well-equipped and up-to-date training schools for the purpose of meeting their needs in the most economical manner.

29. *Services.* The idea held in some quarters that since forests grow by themselves, they need no technical management is based on ignorance. Inadequacy of technical personnel, and weakening of the professional standards of the men called upon to manage forests, would be followed not only by a loss of revenue but also by a general degradation of the forests, resulting in reduced output of forest produce and in deterioration of physical conditions.

30. *Forest Research.* Investigations in the biological aspects of forestry, among others Silviculture, Botany, and Entomology, have naturally leaned heavily upon the cooperation of Forest Departments of the various States, most of which have an organisation of their own for the purpose. The maintenance of a research organisation in each State commensurate with its resources and requirements is in the interests of efficient forest management of the country as a whole. Research in the utilisation of forest products has, on the other hand, always been initiated and conducted at the Forest Research Institute where special equipment for the purpose exists. This balanced arrangement ensures both efficiency and economy. The Institute also is naturally the centre for specialised education in forest industries; and special technical courses in paper and plywood technology, wood preservation, timber seasoning and other cognate subjects have been organised to meet the demands of industry for technicians.

31. *Liaison with Industry.* There is also considerable scope for improvement in securing the utilisation of the results of research on forest products by commercial and industrial interests. For ensuring closer contact between the Forest Research Institute and the interests utilising timber and forest products, liaison and publicity arrangements at the Institute need to be strengthened.

32. *Popular Goodwill, Cooperatives and Forest Workers.* While forest legislation, forest education, and forest research constitute the basis for sound forest management, the welfare and goodwill of the people in the neighbourhood of forests provide the firm ground on which it stands. No forest policy, however well intentioned and meticulously drawn up, has the slightest chance of success without the willing support and cooperation of the people. The recognition of their rights to forest produce at concessional rates, or, free of royalty, is not by itself enough. What is necessary is to instil in the people a direct interest in the utilisation of forests. Intermediaries who exploit both the forests and local

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labour for their own benefit may with advantage be supplanted gradually by forests labour cooperative societies which may be formed to suit local conditions. Once the local population learns to look upon the forest as a means of its livelihood, a great step forward will have been taken.

33. *Forest Budgets.* Forestry is a long range enterprise and it becomes incumbent upon State Governments to secure for it freedom from the vagaries of the annual budget. A steady flow of funds is indispensable for sustained forest operations such as, replacement of what is removed annually, improvement of remaining crops, development of communications for opening up remote areas, and protective measures; they have to be based on phased schemes which should not be set aside lightly. Budget cuts made from year to year to meet the exigencies of State finances can only be made at the expense of continuity in forest management—apart from other benefits—and at the sacrifice of forest revenue and other benefits in the coming year. The creation of a sinking fund, therefore, by investing a portion of the revenue in Government securities, more particularly during boom years, would not only ensure availability of funds for replacement and development costs, but may also be made to act as an equalising fund to be drawn upon in lean years to prevent a fall in revenue. The immediate profit motive should be rigidly ruled out; for, this urge may endanger the supply of large and special timber for defence and industry and lead to a disturbance of climatic conditions seriously affecting agriculture. The adoption of rotations to produce large-sized timber is often of greater importance to the general economy of the country than that of rotations which yield the maximum rate of interest in forest investments.

34. *Policy.* An enunciation of general principles. While the discretion of State Governments to regulate the details of forest administration in their respective territories is left unfettered, the general principles of the above forest policy should, in paramount national interests be observed by them in framing their policies and legislation for the conservation of their forest resources. The forest policy of every State should be so framed as not to impinge adversely upon the general economy and physical balance of an adjoining State. It should be in consonance with the general principles underlying the Forest Policy laid down by the Centre for the preservation and development of the nation's forest resources which are so vital to its general well-being.

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APPENDIX 6.3

RESOLUTION

National Forest Policy, December 1988

1. *Preamble*

1.1 In Resolution No. 13/52/F, dated May 12, 1952, the Government of India in the erstwhile Ministry of Food and Agriculture enunciated a Forest Policy to be followed in the management of State forests in the country. However, over the years, forests in the country have suffered serious depletion. This is attributable to relentless pressures arising from ever-increasing demand for fuelwood, fodder and timber; inadequacy of protection measures; diversion of forest lands to non-forest uses without ensuring compensatory afforestation and essential environmental safeguards; and the tendency to look upon forests as revenue earning resource. The need to review the situation and to evolve, for the future, a new strategy of forest conservation has become imperative. Conservation includes preservation, maintenance, sustainable utilisation, restoration, and enhancement of the natural environment. It has thus become necessary to review and revise the National Forest Policy.

2. *Basic Objectives*

2.1 The basic objectives that should govern the National Forest Policy are the following:

—Maintenance of environmental stability through preservation and, where necessary, restoration of the ecological balance that has been adversely disturbed by serious depletion of the forests of the country.

—Conserving the natural heritage of the country by preserving the remaining natural forests with the vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the country.

—Checking soil erosion and denudation in the catchment areas of rivers, lakes, reservoirs in the interest of soil and water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs.

—Checking the extension of sand-dunes in the desert areas of Rajasthan and along the coastal tracts.

—Increasing substantially the forest/tree cover in the country through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands.

—Meeting the requirements of fuelwood, fodder, minor forest produce and small timber of the rural and tribal populations.

—Increasing the productivity of forests to meet essential national needs.

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—Encouraging efficient utilisation of forest produce and maximising substitution of wood.

—Creating a massive people's movement with the involvement of women, for achieving these objectives and to minimise pressure on existing forests.

2.2 The principal aim of Forest Policy must be to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which are vital for sustenance of all lifeforms, human, animal and plant. The derivation of direct economic benefit must be subordinated to this principal aim.

3. Essentials of Forest Management

3.1 Existing forests and forest lands should be fully protected and their productivity improved. Forest and vegetal cover should be increased rapidly on hill slopes, in catchment areas of rivers, lakes and reservoirs and ocean shores and on semi-arid, arid and desert tracts.

3.2 Diversion of good and productive agricultural lands to forestry should be discouraged in view of the need for increased food production.

3.3 For the conservation of total biological diversity, the network of national parks, sanctuaries, biosphere reserves and other protected areas should be strengthened and extended adequately.

3.4 Provision of sufficient fodder, fuel and pasture, specially in areas adjoining forest, is necessary in order to prevent depletion of forests beyond the sustainable limit. Since fuelwood continues to be the predominant source of energy in rural areas, the programme of afforestation should be intensified with special emphasis on augmenting fuelwood production to meet the requirement of the rural people.

3.5 Minor forest produce provides sustenance to tribal population and to other communities residing in and around the forests. Such produce should be protected, improved and their production enhanced with due regard to generation of employment and income.

4. Strategy

4.1 *Area under Forests* The national goal should be to have a minimum of one-third of the total land area of the country under forest or tree cover. In the hills and in mountainous regions, the aim should be to maintain two-third of the area under such cover in order to prevent erosion and land degradation and to ensure the stability of the fragile ecosystem.

4.2 *Afforestation, Social Forestry and Farm Forestry*

4.2.1 A massive need-based and time-bound programme of afforestation and tree planting, with particular emphasis on fuelwood and fodder development, on all degraded and denuded lands in the country, whether forest or non-forest land, is a national imperative.

4.2.2 It is necessary to encourage the planting of trees alongside of roads,

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railway lines, rivers and streams and canals, and on other unutilised lands under State/corporate, institutional or private ownership. Green belts should be raised in urban/industrial areas as well as in arid tracts. Such a programme will help to check erosion and desertification as well as improve the micro-climate.

4.2.3 Village and community lands, including those on foreshores and environs of tanks, not required for other productive uses, should be taken up for the development of tree crops and fodder resources. Technical assistance and other inputs necessary for initiating such programmes should be provided by the Government. The revenues generated through such programmes should belong to the panchayats where the lands are vested in them; in all other cases, such revenues should be shared with the local communities in order to provide an incentive to them. The vesting, in individuals, particularly from the weaker sections (such as landless labour, small and marginal farmers, scheduled castes, tribals, women) of certain ownership rights over trees, could be considered, subject to appropriate regulations; beneficiaries would be entitled to usufruct and would in turn be responsible for their security and maintenance.

4.2.4 Land laws should be so modified wherever necessary so as to facilitate and motivate individuals and institutions to undertake tree-farming and grow fodder plants, grasses and legumes on their own land. Wherever possible, degraded lands should be made available for this purpose either on lease or on the basis of a tree-patta scheme. Such leasing of the land should be subject to the land grant rules and land ceiling laws. Steps necessary to encourage them to do so must be taken. Appropriate regulations should govern the felling of trees on private holding.

4.3 *Management of State Forests*

4.3.1 Schemes and projects which interfere with forests that clothe steep slopes, catchments of rivers, lakes, and reservoirs, geologically unstable terrain and such other ecologically sensitive areas should be severely restricted. Tropical rain/moist forests, particularly in areas like Arunachal Pradesh, Kerala, Andaman and Nicobar Islands, should be totally safeguarded.

4.3.2 No forest should be permitted to be worked without the Government having approved the management plan, which should be in a prescribed format and in keeping with the National Forest Policy. The Central Government should issue necessary guidelines to the State Governments in this regard and monitor compliance.

4.3.3 In order to meet the growing needs for essential goods and services which the forests provide, it is necessary to enhance forest cover and productivity of the forests through the application of scientific and technical inputs. Production forestry programmes, while aiming at enhancing the forest cover in the country, and meeting national needs, should also be oriented to narrowing, by the turn of the century, the increasing gap between demand and supply of fuelwood. No such programme, however, should entail clear-felling of adequately stocked natural forests. Nor should exotic species be introduced, through public or private sources, unless long-term scientific trials undertaken

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by specialists in ecology, forestry and agriculture have established that they are suitable and have no adverse impact on native vegetation and environment.

4.3.4 *Rights and Concessions*

4.3.4.1 The rights and concessions, including grazing, should always remain related to the carrying capacity of forests. The capacity itself should be optimised by increased investment, silvicultural research and development of the area. Stall-feeding of cattle should be encouraged. The requirements of the community, which cannot be met by the rights and concessions so determined, should be met by development of social forestry outside the reserved forests.

4.3.4.2 The holders of customary rights and concessions in forest areas should be motivated to identify themselves with the protection and development of forests from which they derive benefits. The rights and concessions from forests should primarily be for the bonafide use of the communities living within and around forest areas, specially the tribals.

4.3.4.3 The life of tribals and other poor living within and near forests revolves around forests. The rights and concessions enjoyed by them should be fully protected. Their domestic requirements of fuelwood, fodder, minor forest produce and construction timber should be the first charge on forest produce. These and substitute materials should be made available through conveniently located depots at reasonable prices.

4.3.4.4 Similar consideration should be given to scheduled castes and other poor living near forests. However, the area, which such consideration should cover, would be determined by the carrying capacity of the forests.

4.3.5 Wood is in short supply. The long-term solution for meeting the existing gap lies in increasing the productivity of forests, but to relieve the existing pressure on forests for the demands of railway sleepers, construction industry (particularly in the public sector), furniture and panelling, mine-pit props, paper and paper board etc. substitution of wood needs to be taken recourse to. Similarly, on the front of domestic energy, fuelwood needs to be substituted as far as practicable with alternate sources like bio-gas, LPG and solar energy. Fuel-efficient "Chulhas" as a measure of conservation of fuelwood need to be popularised in rural areas.

4.4 *Diversion of Forest Lands for Non-forest Purposes*

4.4.1 Forest land or land with tree cover should not be treated merely as a resource readily available to be utilised for various projects and programmes, but as a national asset which requires to be properly safeguarded for providing sustained benefits to the entire community. Diversion of forest land for any non-forest purpose should be subject to the most careful examinations by specialists from the standpoint of social and environmental costs and benefits. Construction of dams and reservoirs, mining and industrial development and expansion of agriculture should be consistent with the needs for conservation of trees and forests. Projects which involve such diversion should at least provide in their investment budget, funds for regeneration/compensatory afforestation.

4.4.2 Beneficiaries who are allowed mining and quarrying in forest land and

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in land covered by trees should be required to repair and re-vegetate the area in accordance with established forestry practices. No mining lease should be granted to any party, private or public, without a proper mine management plan appraised from the environmental angle and enforced by adequate machinery.

4.5 *Wildlife Conservation* Forest Management should take special care of the needs of wildlife conservation, and forest management plans should include prescriptions for this purpose. It is specially essential to provide for "corridors" linking the protected areas in order to maintain genetic continuity between artificially separated subsections of migrant wildlife.

4.6 *Tribal People and Forests* Having regard to the symbiotic relationship between the tribal people and forests, a primary task of all agencies responsible for forest management, including the forest development corporations should be to associate the tribal people closely in the protection, regeneration and development of forests as well as to provide gainful employment to people living in and around the forest. While safeguarding the customary rights and interests of such people, forestry programmes should pay special attention to the following.

- One of the major causes for degradation of forest is illegal cutting and removal by contractors and their labour. In order to put an end to this practice, contractors should be replaced by institutions such as tribal cooperatives, labour cooperatives, government corporations, etc. as early as possible;
- Protection, regeneration and optimum collection of minor forest produce along with institutional arrangements for the marketing of such produce;
- Development of forest villages on par with revenue villages;
- Family oriented schemes for improving the status of the tribal beneficiaries; and
- Undertaking integrated area development programmes to meet the needs of the tribal economy in and around the forest areas, including the provision of alternative sources of domestic energy on a subsidised basis, to reduce pressure on the existing forest areas.

4.7 *Shifting Cultivation* Shifting cultivation is affecting the environment and productivity of land adversely. Alternative avenues of income, suitably harmonised with the right landuse practices, should be devised to discourage shifting cultivation. Efforts should be made to contain such cultivation within the area already affected, by propagating improved agricultural practices. Area already damaged by such cultivation should be rehabilitated through social forestry and energy plantations.

4.8 *Damage to Forests from Encroachments, Fires and Grazing*

4.8.1 Encroachment on forest lands has been on the increase. This trend has to be arrested and effective action taken to prevent its continuance. There should be no regularisation of existing encroachments.

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4.8.2 The incidence of forest fires in the country is high. Standing trees and fodder are destroyed on a large scale and natural regeneration annihilated by such fires. Special precautions should be taken during the fire season. Improved and modern management practices should be adopted to deal with forest fires.

4.8.3 Grazing in forest areas should be regulated with the involvement of the community. Special conservation areas, young plantations and regeneration areas should be fully protected. Grazing and browsing in forest areas need to be controlled. Adequate grazing fees should be levied to discourage people in forest areas from maintaining large herds of non-essential livestock.

4.9 *Forest-based Industries* The main considerations governing the establishment of forest-based industries and supply of raw material to them should be as follows:

- As far as possible, a forest-based industry should raise the raw material needed for meeting its own requirements, preferably by establishment of a direct relationship between the factory and the individuals who can grow the raw material by supporting the individuals with inputs including credit, constant technical advice and finally harvesting and transport services.
- No forest-based enterprise, except that at the village or cottage level, should be permitted in the future unless it has been first cleared after a careful scrutiny with regard to assured availability of raw material. In any case, the fuel, fodder and timber requirements of the local population should not be sacrificed for this purpose.
- Forest-based industries must not only provide employment to local people on priority but also involve them fully in raising trees and raw material.
- Natural forests serve as a gene pool resource and help to maintain ecological balance. Such forests will not, therefore, be made available to industries for undertaking plantation and for any other activities.
- Farmers, particularly small and marginal farmers, would be encouraged to grow, on marginal/degraded lands available with them, wood species required for industries. These may also be grown along with fuel and fodder species on community lands not required for pasture purposes, and by forest department/corporations on degraded forests, not earmarked for natural regeneration.
- The practice of supply of forest produce to industry at concessional prices should cease. Industry should be encouraged to use alternative raw materials. Import of wood and wood products should be liberalised.
- The above considerations will, however, be subject to the current policy relating to land ceiling and land-laws.

4.10 *Forest Extension* Forest conservation programme cannot succeed without the willing support and cooperation of the people. It is essential, therefore, to inculcate in the people, a direct interest in forests, their development and

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conservation, and to make them conscious of the value of trees, wildlife and nature in general. This can be achieved through the involvement of educational institutions, right from the primary stage. Farmers and interested people should be provided opportunities through institutions like Krishi Vigyan Kendras, Trainers' Training Centres to learn agri-silvicultural and silvicultural techniques to ensure optimum use of their land and water resources. Short-term extension courses and lectures should be organised in order to educate farmers. For this purpose, it is essential that suitable programmes are propagated through mass media, audio-visual aids and the extension machinery.

4.11 *Forestry Education* Forestry should be recognised both as a scientific discipline as well as a profession. Agriculture universities and institutions dedicated to the development of forestry education should formulate curricula and courses for imparting academic education and promoting post-graduate research and professional excellence, keeping in view the manpower needs of the country. Academic and professional qualifications in forestry should be kept in view for recruitment to the Indian Forest Service and the State Forest Service. Specialised and orientation courses for developing better management skills by inservice training need to be encouraged, taking into account the latest developments in forestry and related disciplines.

4.12 *Forestry Research* With the increasing recognition of the importance of forests for environmental health, energy and employment, emphasis must be laid on scientific forestry research, necessitating adequate strengthening of the research base as well as new priorities for action. Some broad priority areas of research and development needing special attention are:

(i) Increasing the productivity of wood and other forest produce per unit of area per unit time by the application of modern scientific and technological methods.
(ii) Revegetation of barren/marginal/waste/mined lands and watershed areas.
(iii) Effective conservation and management of existing forest resources (mainly natural forest ecosystems).
(iv) Research related to social forestry for rural/tribal development.
(v) Development of substitutes to replace wood and wood products.
(vi) Research related to wildlife and management of national parks and sanctuaries.

4.13 *Personnel Management* Government policies in personnel management for professional foresters and forest scientists should aim at enhancing their professional competence and status and attracting and retaining qualified and motivated personnel, keeping in view particularly the arduous nature of duties they have to perform, often in remote and inhospitable places.

4.14 *Forest Survey and Data Base* Inadequacy of data regarding forest resources is a matter of concern because this creates a false sense of complacency. Priority needs to be accorded to completing the survey of forest resources in

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the country on scientific lines and to updating information. For this purpose, periodical collection, collation and publication of reliable data on relevant aspects of forest management needs to be improved with recourse to modern technology and equipment.

4.15 *Legal Support and Infrastructure Development* Appropriate legislation should be undertaken, supported by adequate infrastructure, at the Centre and State levels in order to implement the policy effectively.

4.16 *Financial Support for Forestry* The objectives of this revised policy cannot be achieved without the investment of financial and other resources on a substantial scale. Such investment is indeed fully justified considering the contribution of forests in maintaining essential ecological processes and life-support systems and in preserving genetic diversity. Forests should not be looked upon as a source of revenue. Forests are a renewable natural resource. They are a national asset to be protected and enhanced for the well-being of the people and the nation.

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APPENDIX 6.4

Statement showing the Statewise and Yearwise Progress in Afforestation Physically and Financially during the Seventh Five-Year Plan

(No. of trees in lakhs)
(Rs. in lakhs within parenthesis)

S. No.	States/UTs	Yearwise Progress of Afforestation in 7th Plan (Achievements)			
		1985–86	1986–87	1987–88	1988–89
1.	Andhra Pradesh	3156.00 (3630.00)	2874.15 (3312.60)	3051.34 (3582.53)	2834.95 (3538.00)
2.	Arunachal Pradesh	103.00 (409.60)	125.08 (431.00)	127.04 (428.50)	141.54 (451.75)
3.	Assam	396.00 (1595.00)	625.50 (1725.75)	497.87 (1892.75)	445.50 (2128.00)
4.	Bihar	1523.00 (3254.00)	2711.00 (4066.37)	3152.00 (4178.75)	3223.00 (5298.00)
5.	Goa	45.00 (119.20)	67.93 (119.50)	74.70 (131.65)	73.73 (118.00)
6.	Gujarat	2497.00 (2411.40)	2271.00 (2837.97)	2141.50 (3469.50)	4283.55 (3168.00)
7.	Haryana	937.00 (1247.40)	741.58 (1288.27)	380.00 (1459.75)	632.74 (1921.50)
8.	Himachal Pradesh	672.00 (1352.20)	671.28 (1762.30)	615.09 (1932.75)	683.73 (2257.50)
9.	Jammu & Kashmir	467.00 (708.00)	570.52 (892.00)	400.06 (1007.50)	504.74 (1124.63)
10.	Karnataka	2546.00 (1965.80)	2316.74 (2372.24)	3852.21 (2853.25)	3091.00 (2710.50)
11.	Kerala	1166.00 (1618.40)	1519.24 (1757.50)	1555.44 (2003.00)	1521.02 (2374.00)
12.	Madhya Pradesh	3501.00 (3144.60)	3290.00 (4269.99)	4090.46 (4687.75)	4416.00 (4672.00)
13.	Maharashtra	2165.00 (2935.00)	2381.70 (3955.37)	3079.96 (4062.50)	5700.00 (4194.25)
14.	Manipur	125.00 (231.60)	148.80 (246.25)	180.25 (303.50)	198.96 (403.50)
15.	Meghalaya	131.00 (507.60)	158.00 (557.00)	237.57 (670.50)	329.77 (756.00)
16.	Mizoram	700.00 (363.60)	478.05 (487.00)	277.50 (512.50)	300.00 (658.00)
17.	Nagaland	269.00 (290.60)	543.50 (352.50)	200.00 (506.75)	230.00 (518.00)
18.	Orissa	1930.00 (1659.00)	2326.72 (1964.59)	2340.05 (2637.70)	2762.17 (2667.25)
19.	Punjab	590.00	567.59	405.52	574.60

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Appendix 6.4 *Contd.*

S. No.	States/UTs	*Yearwise Progress of Afforestation in 7th Plan (Achievements)*			
		1985–86	*1986–87*	*1987–88*	*1988–89*
		(717.40)	(496.00)	(873.75)	(1035.25)
20.	Rajasthan	958.00	1341.03	1173.87	1300.00
		(1444.60)	(2723.17)	(2939.25)	(3202.00)
21.	Sikkim	82.00	115.03	133.87	126.15
		(215.60)	(199.75)	(233.25)	(235.00)
22.	Tamil Nadu	1215.00	1981.28	1911.74	1805.57
		(2390.40)	(3299.40)	(3606.00)	(3479.50)
23.	Tripura	200.00	263.00	267.13	267.00
		(411.00)	(435.50)	(395.50)	(462.75)
24.	Uttar Pradesh	3548.00	4865.00	4420.71	5311.95
		(3974.80)	(6617.14)	(7217.25)	(7589.75)
25.	West Bengal	1115.00	1416.00	1391.08	1112.00
		(2065.00)	(2259.79)	(2609.20)	(3292.88)
26.	A & N Islands	95.00	122.32	100.43	107.59
		(136.20)	(122.00)	(143.50)	(259.50)
27.	Chandigarh	1.52	3.83	3.59	3.54
		(26.60)	(23.25)	(24.35)	(23.50)
28.	Delhi	25.00	63.03	18.06	65.90
		(80.40)	(82.75)	(108.80)	(45.00)
29.	D & N Haveli	31.00	35.20	74.70	38.32
		(62.80)	(46.50)	(68.25)	(111.25)
30.	Lakshadweep	0.25	0.29	0.24	2.25
		(3.60)	(4.25)	(4.75)	(7.25)
31.	Pondicherry	11.00	12.93	10.32	10.46
		(22.60)	(31.00)	(38.50)	(48.00)
32.	Daman & Diu	—	—	0.53	1.17
		(—)	(—)	(—)	(85.50)
	Total	30200.77	35237.32	35511.35	42098.90
		(38494.20)	(49248.70)	(54083.50)	(59196.01)
	Area Coverage *(M.Ha)	1.51	1.76	1.77	2.10

NOTE: Figures given in parentheses indicate the total allocations for afforestation under the schemes of NWDB, Rural Development Department and State Plans.

* Computed notionally @ 2000 Seedlings per ha.

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APPENDIX 6.5

People's Participation in Conservation

I. The Chipko Movement

The credit for the Chipko movement goes to the women of Chamoli district who for the first time in April 1973, declared that they would literally embrace the trees if a sports goods company attempted to axe the ash trees. Their demonstration was repeated all over Uttarakhand, at several places where trees were threatened to be axed. Later in 1978, they actually confronted the men and the armed police was sent to help the contractors' axemen.

But even here, it first started off not as a movement for conservation but mainly as a fight against socio-economic exploitation.

Though the main demand of the Chipko movement in 1973 was an end to the contract system of forest exploration and allotment of raw materials for local, forest-based industrial units, on concessional rates, since then there has been basic change in the objectives of the movement. It has developed into an ecological movement of permanent economy from a movement of short-term exploitative economy. The movement is striving to get the scientific truth accepted that the main products of the forests are oxygen, water and soil.

The 'Chipko Andolan' is looked at by many people as the first true ecological movement of the people, and there are constant efforts to widen its area of influence and to replicate it elsewhere.

Undoubtedly, it has had the following success:

1. It has slowed down, if not totally stopped, the process of deforestation in the Uttarakhand region and in other hill areas of U.P.
2. It has exposed the vested interests involved in the mass destruction of forests.
3. It has given the people of the region a rallying point to collectively oppose the exploitation of their natural resources.
4. It has created an awareness among the people regarding the implications of ecological destruction.
5. It has demonstrated the workability of a powerful model of people's participation, a model that can be emulated and replicated.

II. Save the Silent Valley Movement

The effort to save Silent Valley, in Kerala, is also known today. Basically the movement as such has three main constituents:

First, there are the people of Kerala, many of whom feel that the construction of the dam and hydro-electric power station in Silent Valley should be abandoned. This group of Keralites have vocally and persistently campaigned against the project, very often under the umbrella of various local organisations like the Kerala Sastra Sahitya Parishad, the Society for Protection of Silent Valley and Da Vinci Environmentalists among others. The local people

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petitioned the government attempted to educate the common public and publicised the issue through newspapers. They fought hard to get a proper assessment of the project done.

Organisations were formed by academics, scientists, environmentalists and public spirited men throughout the country to serve as focal points of public action against the project. An attempt was also made by the Friends of Trees and the Society for Protection of Silent Valley (Regd.) at the High Court of Kerala to halt the execution of the project.*

The second group was formed of people outside the state of Kerala who were concerned about the issue. These people also agitated, and publicised and were vocal, again very often through organisations like the Bombay Natural History Society (BNHS), the World Wildlife Fund-India and the Save Silent Valley Committee.

III. Thingtam in Mizoram

In Mizoram, the cyclic flowering of bamboos has a special significance, for whenever each of the two common varieties of bamboos flowers there is an accompanying increase in the rat population. These rodents then, moving in hordes attack the standing crops, especially rice, in the Jhums (areas under shifting cultivation) and sometimes in a couple of hours strip acres of standing crops. This has resulted, in the past, in acute famines.

The NSS organised a series of training courses, in 1976, designed to train student volunteers and college teachers for controlling the ecological effects of the flowering bamboo. These trained students and teachers were then sent out to villages to impart basic training to the villagers for fumigation, baiting and digging pits around the Jhum areas. By the time the bamboo started flowering and the rats started increasing there were 2,000 students and teachers ready to go into the field. The coordinator was in wireless contact, with Aizawl, Champhai and Lumgleh and could, wherever necessary, direct groups to the villages which were about to be attacked. In the final phase the students were involved in assessing the damage caused in different areas, as also collecting additional information asked for by the institutions conducting research.

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* *The Silent Valley Crusade—A Case Study*, typed manuscript of paper presented at the Indian Institute of Science, Bombay, on November 19, 1980 by Prof. M. Sivasankaran and Prof. M. K. Prasad, pp. 4–5.

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APPENDIX 6.6

Project Tiger

Between the First and Second World Wars, the population of tigers in the forests of India was over 40,000. With the waging of war and the introduction of jeeps fitted with powerful searchlights, etc., poaching increased tremendously. The tiger was the first target for destruction. The present tiger population is about 4,000 only and its habitat also is considerably decreased. To preserve this species from extinction world opinion has crystallised and a Project Tiger has been formulated in 1974 which is financed by the World Wildlife Fund. This fund is created with donations from many nations. The outlay during the Seventh Five-Year Plan (1985–86 to 1988–89) for this project is as shown in Table 6.7.

TABLE 6.7

Name of Reserves	*1985–86*	*1986–87*	*1987–88*	*1988–89*	*Total (Rs. in lakhs)*
Corbett	10.00	13.12	13.15	—	37.07
Palamau	11.45	16.10	17.52	—	45.07
Simlipal	9.93	11.40	17.00	—	38.33
Kanda	10.49	5.02	19.85	—	35.36
Manas	20.42	17.61	14.85	—	52.88
Sariska	8.39	8.79	23.33	—	40.51
Ranthambore	7.67	8.51	17.62	20.48	54.27
Bandipur	12.35	13.02	14.77	—	40.14
Sunderbans	8.57	10.77	19.55	1.37	40.26
Melghat	12.98	14.55	—	—	27.53
Periyar	9.90	14.69	19.00	9.02	52.61
Indravati	9.42	13.16	11.30	—	33.38
Nagarjuna Sagar	12.56	15.66	17.13	—	45.35
Buxa	2.10	8.03	21.01	11.05	42.19
Namdapha	24.96	24.57	17.18	—	65.71
Oudhwa	—	—	18.75	—	18.75
Total	171.19	195.00	262.00	41.92	670.01

Results

In March 1989, the 'Project Tiger' completed 16 years of its existence. During this short span of time the number of all rare and endangered species has increased considerably. These include the elephant, the rhinoceros, the wild buffalo, the gaur (Indian bison), the swamp deer, the hispid hare, the pygmy hog, the hoolock gibbon, the capped langur, the clouded leopard, the snow leopard, the musk deer, the spotted deer, sambar, the hog deer, the barking deer, the wild goat, the goral, the marsh crocodile, the gharial, etc. Since the

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tiger depends upon all these species for its survival, the increase in the number of tigers reflects the relative growth in the population and status of other animals and plant communities which support these animals.

The sudden outburst in the tiger population suggests that tigers from adjoining forests areas have also moved in due to favourable habitats created within the Tiger Reserve.

The greatest achievement of the Project Tiger Scheme is, however, not the increased tiger population, but the preservation of the unspoilt specimen of India's diverse vegetation types.

The recovery of ground and field level vegetation is phenomenal and if one compares a Tiger Reserve with other adjacent forests, the difference is too obvious to be missed—water regimes improved and streams retaining their flow longer and some once-seasonal water courses becoming perennial. Strikingly, low monsoon silt load in the streams of the Reserves as compared to that in the streams of adjacent areas signifies the success of soil conservation measures.

These facts point to the conclusion that the status of the tiger in the country is an index of the ecological health of our forests and wildlife living therein. These well preserved, self-evolving 'Reserves' are the treasure-house of our genetic heritage. Tiger Reserves, in the real sense of the word, are the 'Nature Reserves' of India.

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7

NATIONAL HEALTH POLICY

INTRODUCTION

According to the World Health Organisation health is a "state of complete physical, mental and social well-being and not merely the absence of disease or deformity". One of the fundamental rights of every human being without distinction of race, religion, political belief, etc. is the enjoyment of the highest attainable standard of health.[1] Owing to a variety of factors like lack of health consciousness, low per capita income, lack of adequate education, non-availability of proper sanitary conditions and safe drinking water, unhealthy social taboos and the like, the health status of the average Indian leaves much to be desired. It has been the endeavour of successive Governments in India to improve the situation. This is especially so after Independence. The National Health Policy, announced by the Government in 1983 is a logical culmination of the consistent efforts, aimed at securing a healthy life for all Indians, pursued by the Government in the recent decades. While many are the achievements in the past, more needs to be done now and in the near future.

Since the attainment of Independence, the country has made significant progress in improving the health status of its people. Plague and smallpox have been completely eradicated, cholera has been successfully contained, and considerable headway has been made in the control of malaria, leprosy, tuberculosis, blindness, filariasis and several other diseases. The planning process has also contributed to the development of a nationwide primary health care infrastructure in the place of largely hospital based services.

While addressing the World Health Assembly in May 1981, the late Prime Minister Smt. Indira Gandhi observed:

> In India we should like health to go to homes instead of large numbers gravitating towards centralised hospitals. Services must begin where people are and where problems arise.

Also, India is a signatory to the Alma Ata Declaration of 1978 which aims at the attainment by all people of the world by the year 2000, of a level of health that will permit them to lead socially and economically productive lives. The objective is sought to be secured through the primary health care approach.[2] The National Health Policy is a blue print for such concerted action by the Government, the private voluntary agencies and the people for the attainment of the ideal of health for all.

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[1] *Report of the Health Survey and Planning Committee (Mudaliar Committee)*, 1961, p. 53.
[2] L. S. Deb, December 12, 1983, col. 356.

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In this context, it would be appropriate if we look back at the rapid strides the country has made in strengthening the health care system.

HEALTH CONDITIONS IN INDIA AT THE TIME OF INDEPENDENCE

The Health Survey and Development Committee (Bhore Committee), which was appointed by the Government of India in October 1943, to make a survey of the existing position in regard to health conditions and health organisation in what was then known as British India and to make recommendations for the future developments, found that they had to confine themselves mainly to statistics of ill-health and death, in the absence of data on positive health.

The Bhore Committee which submitted their report in 1946, found that the general death rate in "British India" was 22.4 while the infant mortality rate was 162, and that the expectation of life at birth was 26.91 for males and 26.56 for females. Nearly half the total number of deaths were among children under 10 years of age and in this age group one-half of the mortality took place within the first year of life.

Although vaccination had been in vogue for nearly eight years, India continued to be a reservoir of smallpox.

Endemic diseases like leprosy, filariasis, guinea-worm and hook-worm, though not contributing to a large extent to the mortality figures, caused considerable morbidity.

The Bhore Committee found that the low state of public health, as reflected in the high mortality and morbidity (particularly among mothers and children) was preventable and was mainly due to the absence of environmental hygiene, adequate nutrition, adequate preventive and curative health services and intelligent cooperation from the people themselves. To these causes may be added illiteracy, unemployment, poverty, purdah system and early marriages.

There was a wide prevalence of insanitary conditions in urban and rural areas. The provision for protected water supply and drainage was totally inadequate. The food consumed by millions was both insufficient and ill-balanced.

The curative and preventive health services were totally inadequate. There was only one doctor for 6,300 people and one nurse for 43,000, one health visitor for 400,000 and one midwife for 60,000 people.

Roughly one-fourth the number of doctors were in Government service, the rest being mostly settled in urban areas as private practitioners. Again there were only a total of 70 to 80 women medical officers in public service engaged purely in maternity and child welfare work. Very few of these were medical graduates.

Hospitals and dispensaries for providing medical relief to the people, particularly in the rural areas, were grossly insufficient and the quality of such services was very poor. There was only 0.24 bed per 1,000 population.

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Some of the important recommendations made by the Committee in their report were the following:

> "No individual should fail to secure adequate medical care because of inability to pay for it.
>
> "Health service should provide all consultant, laboratory and institutional facilities for proper diagnosis and treatment.
>
> "The health programme must, from the very beginning, lay special emphasis on preventive work.
>
> "As much medical relief and preventive health care as possible should be provided to the vast rural population of the country. Health services should be placed as close as possible to the people in order to ensure the maximum benefit to the communities to be served.
>
> "Health consciousness should be stimulated by providing health education on a wide basis as well as by providing opportunities for the individual's participation in local health programmes."[3]

The short-term measures suggested by the Committee included the raising of bed population ratio from 0.24 per 1000 to 1.03 at the end of 10 years. Provision for travelling dispensaries to supplement the health services rendered by primary health centres, promotion of hygienic life, etc. The longer term aims included raising the bed population ratio to 2 per 1000, establishment of more medical colleges, training centres for nurses, etc.[4]

DEVELOPMENT OF VERTICAL PROGRAMMES

The report of the Health Survey and Development Committee in 1946 and the attainment of Independence by the country in 1947 led to intensive efforts by the new National Government for controlling certain major communicable diseases. It was thought that as the development of the organisation recommended by the Bhore Committee would take a long time, it would be desirable to make special efforts for the control of smallpox, malaria, filaria, tuberculosis and leprosy through special efforts directed specifically on these diseases.

Smallpox

The Bhore Committee brought out that the incidence of smallpox was highest in India and was responsible for about 70,000 deaths per year. The vaccination facilities were provided only for a limited population and even where such facilities were available the coverage was unsatisfactory.

The Government of India appointed an Expert Committee on Smallpox and Cholera. The Committee in its report in 1958 recommended launching of the

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[3] Quoted in the *Mudaliar Committee Report*, pp. 15–20.
[4] *Ibid.*, pp. 19–20.

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National Smallpox Eradication Programme and training and recruitment of 20,000 vaccinators for smallpox and cholera vaccination.

Malaria

It was estimated that nearly 75 million people suffered from malaria every year. Considering it a major health problem, the National Malaria Control Programme was launched in 1953–54 in selected areas which gradually went on expanding to cover the whole country, with a vertical organisation with separate malaria officers, malaria inspectors, health inspectors and malaria workers.

Filaria

The experimental project for the control of filaria was started in 1950 by the Indian Council of Medical Research and based on the report of the experimental project, the National Filaria Control Programme was initiated in 1955. The National Filaria Control Programme established separate survey and control units for this purpose.

Tuberculosis

The BCG Vaccination Programme was started on a pilot basis in 1948. A National Tuberculosis Sample Survey in 1955 indicated the incidence of tuberculosis varying from 13 to 25 per thousand population in different parts of the country. Considering the high incidence of tuberculosis in the country, the National Tuberculosis Programme was launched in 1958 and a large number of BCG teams were established.

Leprosy

The Bhore Committee brought out that leprosy affected 2.5 per cent of the population in different parts of the country. The National Leprosy Control Programme was launched during the First Five-Year Plan (1951–56) by the establishment of survey and treatment teams in areas where incidence was more than 1 per cent. Each team covered a population of 80,000.

The report of the Committee for the Control of Leprosy (1955) brought out that nearly 2.5 million people were suffering from leprosy and that 205 million people lived in endemic zones.

During the Third Five-Year Plan, starting in 1961, the National Leprosy Control Programme was changed to the National Leprosy Eradication Programme.

Report of the Committee on Public Health Act, 1955

In pursuance of a Resolution passed by the Central Council of Health, the Government of India appointed a Committee in 1953 to draw up a model comprehensive Public Health Act which the various States in India might enact

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with such modifications as may be necessary to suit local conditions.The Committee submitted its report in 1955.

The Committee in its report recommended a unified and integrated health organisation at various levels to be operated through:

(i) *Directorate of Health Services*: This was to be under the Director of Health Services assisted by the required number of Deputy Directors for individual programmes/activities.

(ii) *District Headquarters Organisation*: The Medical Officer of Health shall be the Chief Administrative Officer in charge of health services in the district. He would be assisted by one or more Deputy Medical Officers of Health.

(iii) *Sub-Divisional Headquarters Organisation*: The Sub-divisional Medical Officer of Health shall be in charge of medical and health services in the sub-division, and would be supported by necessary medical and para-medical personnel.

(iv) *Thana Health Centre Organisation (in Urban Areas)*: The Thana Health Centre Organisation would be located in urban areas and would be under the charge of the Thana Medical Officer of Health who will also supervise the Rural Health Centres. The Organisation will consist of staff of the hospitals and dispensaries, Sanitary Inspectors, one Health Assistant supported by three or more field workers and Lady Health Visitors, supported by Midwives.

(v) *Rural Health Centre*: The Rural Health Centre would have besides the Medical Officer, Health visitors with ANM (Auxiliary Nurse Midwife) for mid-wifery and child welfare services and Health Assistants for vaccination, inoculation, disinfection and other sanitation works.

Health Survey and Planning Committee (Mudaliar Committee, 1959–61)

The Government of India (Ministry of Health) set up a Committee in June 1959 to undertake the review of the developments that had taken place since the publication of the Report of the Health Survey and Development Committee (Bhore Committee) in 1946 with a view to formulating further health programmes in the country in the third and subsequent Five-Year Plan periods. The terms of reference of this Committee were:

(i) assessment of developments in the field of medical relief and public health centres since the submission of the Health Survey and Development Committee Report;
(ii) review of the Second Five-Year Plan health projects;
(iii) formulation of all the recommendations for the future plan of health development in the country.

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Mudaliar Committee Report

The Committee known as the Health Survey and Planning Committee (Mudaliar Committee) submitted its report in October 1961. The major recommendations of the Committee in respect of future health organisation in the country were as follows:

> "The attempt to start mass campaigns against certain diseases like tuberculosis, smallpox, cholera, leprosy and filariasis is commendable but the method of dealing with these diseases individually will not be conducive to the organisation of unified efforts needed for the promotion of total health care. The health personnel engaged in such mass campaigns must be trained to tackle all health problems in any area while the overall supervision for particular disease may require special attention through specialists; in rural areas it is neither possible nor desirable to have separate agencies to deal with separate diseases.
>
> "Para medical personnel recruited at present for individual diseases such as BCG, leprosy, malaria and filariasis should be given further necessary training in other diseases in order to make them multi-purpose personnel and allocate them to urban and rural centres. Otherwise there is likely to be immense loss of manpower.
>
> "There should be one Auxiliary Nurse Midwife for every 5,000 population and an auxiliary health worker for double that population.
>
> "The problem of integration of medical and health services should not be postponed because of certain initial difficulties.
>
> "The technical set up at State level should be headed by Director of Health Services with a number of Deputy Directors."

Family Planning Programme

India recognised the importance of controlling population from the very beginning of its development plans. The Family Planning Programme up to 1961 was being implemented as a part of the health programme. However the census of 1961 revealed that the Family Planning Programme, though being run for nearly a decade, had not made much headway and that hardly any appreciable reduction had been achieved during the previous decade in the growth rate of population.

In 1961, India invited a UN Mission on Population Activities to visit the country and advise on the steps to be taken for greater acceptence of the small family norm by the population. The recommendations of the UN Mission were considered by a committee appointed by the Government of India. Based on the recommendations of this committee it was decided to have the Family Planning Programme as a vertical programme with a separate hierarchy at the Central level, in the form of a separate Department of Family Planning, to the most peripheral level with separate workers of Family Planning. Considering the direct relationship between infant mortality and acceptance of small family norms, it was also decided to integrate the Mother and Child Health (MCH) programme with Family Planning.

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Committee on Multi-purpose Workers under Health and Family Planning Programmes (1972–73)

The national programmes in the field of Health and Family Planning and Nutrition have been in operation in the country for many years. In general, these programmes were being run almost independently of each other by the staff recruited under each programme. There was little or no coordination between the field workers or supervisory personnel of these programmes. They were separate and independent functionaries. This state of affairs came into existence because the various health programmes, and later on family planning programme, were launched at different times and each was conceived to run vertically with its own staff. A question was raised in many quafters whether the same objectives could be achieved by coordinating these programmes and pooling the personnel. Accordingly the first meeting of the Executive Committee of the Central Family Planning Council held on September 20, 1972 recommended:

> "Steps should be taken for the integration of medical, public health and family planning services at the peripheral level. A Committee should be set up to examine and make detailed recommendations on: (i) structure of integrated services at the peripheral and supervisory level; (ii) feasibility of having multi-purpose/bipurpose workers in the field; (iii) training requirements for such workers; and (iv) utilisation of mobile service units set up under family planning for integrated medical, public health and family planning services."

In pursuance of the above recommendations of the Executive Committee of the Central Family Planning Council, the Government of India appointed a Committee in October 1972. The Committee on Multi-purpose Workers under Health and Family Planning Programme (also known as Kartar Singh Committee) submitted its report in September 1973.

The Committee, while reporting its findings, after eliciting the views of health experts, health administrators and the community, stated that the existing staff of the primary health centres and sub-centres cannot adequately deal with the health and family planning requirements of the populaltion involved. The population given to each worker is too large to be adequately covered and frequently visited. The community leaders were of the view that people are not happy with the services, that so many workers were coming to their homes and making enquiries for individual programmes without being in a position to tackle their health needs. On the basis of its findings the Committee recommended that "multi-purpose workers for the delivery of health and family planning and nutritional services are both feasible and desirable."

The Committee recommended that the programme of having multi-purpose workers should be introduced in the first phase in areas where malaria is in the maintenance phase and smallpox has been controlled. The programme can be extended to other areas as malaria passes into the maintenance phase or where smallpox is controlled. This will be the second phase. The workers engaged in cholera control, filaria and leprosy programmes may continue as such for the

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time being. Similalrly, BCG vaccinators may also continue as such. However, all these workers will be made multi-purpose workers in the third phase of the programme.

The Committee also recommended integration at different levels. The doctors at the PHC (Primary Health Centre) should be able not only to render health care to the population but also to check the work of the health workers at the sub-centres and their supervisors. All the dispensaries in the jurisdiction of a PHC should be linked with it. Also the doctors of the PHC should divide the population on a geographical basis for their field visits. While one doctor is on field visit, another should be available at the PHC.

Better coordination between the PHCs, and Taluk/Tehsil level hospital and administration and between the latter and the district level agencies concerned with health is essential. The links between these and the medical colleges are also to be established/improved. Similar is the case for a revamping of the health administration machinery.

The Committee observed that with the diverse, diffuse and at times conflicting array of medical facilities available in the country, it is not surprising that there is a constant cry of neglect and of inadequacies particularly for the under-privileged sections of the society which constitute the vast majority of the population. Even though the country has a poorer doctors-population ratio, as compared to the developed societies, it is an incontrovertible fact that a proper harnessing of the available resources and a reorganisation of the entire system can go a long way in solving the health problems of the country.

If proper bridges could be built between the medical college hospitals on the one side and the primary health centres on the other, with taluk and district hospitals in between, a much closer liaison can be established between all the workers engaged in the health and family planning programmes. Graded facilities of specialist skills and investigative techniques can then be made available at different levels.

The existing practice of separating curative and preventive medicine also needs to be reviewed. The old departments of hygiene in medical colleges and their more recent prestigious replacements (Department of Preventive and Social Medicine) have to be evaluated. Whereas some divisions in the field of medicine like general medicine, surgery, obstetrics, ophthalmology, etc., have to be there, it is questionable if divisions between preventive medicine, curative medicine and family planning need to be continued.

The time is ripe for a reappraisal of the whole organisation of medical services in the country. The existing divisions, both on account of historical developments and of borrowed ideas from the West, need to be reviewed and the entire system overhauled.

The recommendations of the Committee on Multi-purpose Workers on Health and Family Planning Programme were accepted by the Government of India and it was decided that the recommendations should be implemented from the beginning of the Fifth Five-Year Plan, 1974–79.

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Problems faced in Implementation of Multi-purpose Workers Scheme

The Multi-purpose Workers' Committee while recommending the introduction of the multi-purpose workers at the peripheral level and integration of services at all levels foresaw the difficulties and problems whichwere likely to be faced in the implementation of its recommendations. Certain new problems/difficulties also came to notice during the actual implementation of the recommendations. The various types of problems and difficulties faced can be divided into: (i) administrative, (ii) training and (iii) attitudinal.

Administrative Problems

Introduction of the Multi-purpose Workers Scheme required the integration of the cadres of the different vertical programme workers and their supervisors. At the time of their recruitment these workers had different basic qualifications and terms of service. It became administratively difficult to find out a solution for integrating various cadres and fixing *inter se* seniority among these workers and supervisors as each category of workers started making claims and counter-claims regarding the seniority they should be given in the service.

Training Difficulties

Workers and supervisors recruited under different programmes have different educational qualifications and different types of training. As such, working out a common training curriculum for these workers and supervisors poses a much greater problem.

As the scheme required reorientation training not only of the workers and their supervisors but also of the medical officers at the PHCs and district level and the training of trainers, the scheme threw up a large training load for which neither an adequate number of training institutions nor the required number of trainers were available.

Attitudinal Problems

Under the vertical programme, officers at the State and district levels, particularly in respect of malaria, family planning, leprosy and tuberculosis programmes, had their own hierarchy and enjoyed appreciable administrative and financial powers. With the reorganisation and integration, the financial and administrative powers enjoyed by these officers were transferred to the Chief Medical Officer of the District.These officers saw in this change the crumbling of the hierarchy and loss of powers for which they were not prepared mentally, and opposed the scheme as impracticable and likely to affect the vertical programme implementation adversely. The workers and supervisors under different programmes, though integrated, continued to draw their salaries and benefits from the budget of the individual programme and as such continued to have a more favourable attitude to the programme from the budget of which they drew their salaries.

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The result of these operational problems have been that while it was envisaged that the whole scheme will be implemented in the country by 1982, there are still many States where the scheme has not been effectively implemented so far.[5]

FIVE-YEAR PLANS AND THE HEALTH SECTOR

Soon after the publication of the Report of the Bhore Committee the country became independent. The new Constitution was adopted and the country embarked on a planned economic development. The First Five-Year Plan of 1951–56 provided Rs. 65.2 crore for health development schemes. The main objectives of the First Five-Year Health Plan were provision of water supply and sanitation, control of malaria, preventive health care, health care for mothers and children, education and training and health education.

"Health" (including water supply and sanitation) was allocated Rs. 219.8 crore out of the total plan outlay of Rs. 4672 crore in the Second Five-Year Plan. In the Third Plan a sum of Rs. 358.6 crore, out of a total of Rs. 8576.5 crore was earmarked for Health. (Of this, the provision for water supply and sanitation in the urban and rural areas was of the order of Rs. 105.7 crore.) The corresponding Plan provisions during the Annual Plans 1966–69, Fourth and Fifth Five-Year Plans were of the order of Rs. 325.8 crore, 1080.2 crore and 2349.8 crore respectively.

During 1979–80 the expenditure on these items amounted to Rs. 726.9 crore and the Sixth Five-Year Plan saw an amount of Rs. 7422.3 crore spent on this sector. The Seventh Plan outlay for this sector is of the order of Rs. 13,171.7 crore.[6]

(For details regarding Plan outlays please see Appendix 7.1A.)

During the first decade of plan activity, it may be justifiably claimed that, training facilities had been considerably expanded; facilities for treatment of the sick had improved; the groundwork for the fight against smallpox, tuberculosis, leprosy and filariasis had been laid, the framework for planning and developing a national water supply and sanitation had been brought into existence and a movement for family planning on a mass scale had been set in motion. The infant and maternal mortality rate started declining.

In physical terms, the first 10 years of planned development saw the establishment of 2565 primary health centres, and hospital beds had gone upto 18,500, making a bed patient ratio of 0.4 per thousand. In regard to mother and child health, more than 3500 centres were started in this period. Besides several colleges for nursing degree courses, centres for training health visitors, midwives, etc. were also started. Considerable progress was achieved in the fight against malaria, tuberculosis and leprosy.[7]

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[5] M.D. Saigal: *Development of Health Services in India*, 1984.
[6] Data received from the Ministry of Health and Family Welfare.
[7] *Ibid.*

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It may be mentioned in this connection that while the outlay on health, family welfare, water supply and sanitation represented 3.86 per cent of the total outlay in the First and 4.59 in the Second Plan, only 4.1 per cent of the total outlay was earmarked for health in the Third Plan.[8]

In the three Annual Plans of 1966–69 health sector (health and family welfare) received 3.4 per cent of the funds while the share of water supply and sanitation was 1.6 per cent. In the Fourth Plan, the health sector received 3.9 per cent of the outlay whereas the allocation for water supply and sanitation rose to 2.9 per cent. In the Fifth Plan the respective figures were 3.2 and 2.8. In the Sixth Plan provisions for these items were of the order of 3.1 per cent and 6 per cent respectively. In terms of actual size these come to Rs. 3444.7 crore and 3977.6 crore respectively.[9]

In the Seventh Plan the allocations for the Health Sector (health and family welfare) is Rs. 6649.15 crore and for water supply and sanitation the amount is Rs. 6522.47 crore.

NATIONAL HEALTH POLICY

While the broad approaches contained in the successive Plan documents and discussions thereon might have generally served the needs of the situation in the past, it was felt that an integrated comprehensive approach towards the future development of medical education, research and health services was required to be established to serve the actual health needs and priorities of the country. It was in this context that the National Health Policy (NHP) was evolved by the Government.

The NHP aims at taking the Services nearest to the doorsteps of the people and ensuring fuller participation of the community in the health development process. It has been recognised that if the quality of the lives of the people is to be improved, their health status must be raised. In this perspective, health development is to be viewed as an integral part of overall human resources development. Consequently, a coordinated approach is sought to be established among all the health-related programmes, for example, protected water supply, environmental sanitation and hygiene, nutrition, housing and education. To be successful, an attack on the problems associated with diseases must be accompanied by a direct and frontal attack on poverty, ignorance and superstition.

The National Health Policy points to the need of restructuring the health services—the preventive, promotive and rehabilitative aspects of health care—and brings out the need for establishing comprehensive services to reach the population in the remotest areas. The programmes are being implemented through the fullest involvement of the communities. It views health and human development as a vital component of overall socio-economic development. For

[8] *Health Statistics of India*, 1983, p. 71.
[9] *Ibid.* and data received from the Ministry of Health and Family Welfare.

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the realisation of the various objectives the policy indicates specified goals to be achieved by 1985, 1990 and the year 2000.

Some of the major steps taken towards this direction are the following:

(i) To shift the emphasis from the curative to the preventive and promotive aspects of health care as well as to take services and supplies nearest to the doorsteps of the people, the following changes have been brought about:

(a) Establishment of one Sub-Centre for every 5000 rural (3000 in Tribal and Hilly areas) with one male and one female worker. 21,135 new Sub-Centres were opened during the four years, 1981–84. The total number of Sub-Centres, as on 31.3.84 stood at 74,307. As on 31.3.88, there are as many as 102,674 Sub-centres functioning in the country.

(b) In place of the Primary Health Centre for every Community Development Block, it has been decided to have one Primary Health Centre for every 30,000 rural population (for every 20,000 in Hilly and Tribal areas). 1726 New Primary Health Centres were established during the four years, 1981–84. As on 31.3.85 the country had a total of 7284 Primary Health Centres. The Planning Commission had fixed a target of setting up 197 more PHCs during the year 1984–85.

(ii) To further the Primary Health Care approach and secure community involvement, a centrally sponsored programme is being evolved to train Health Guides selected by the community for every village or every 1000 rural population. 3.50 lakh village Health Guides had been trained till 1.4.85.

(iii) The Leprosy Control Programme has been converted into a 100 per cent Centrally funded programme. Following the late Prime Minister Smt. Indira Gandhi's call for eradication of leprosy on a time bound basis, the Leprosy Control Programme was taken up as a 'Leprosy Eradication Programme' and a National Leprosy Eradication Commission was set up for providing policy guidelines. A national Leprosy Eradication Board was also established for effectively implementing the recommendations of the Commission. Similar policy guidance and implementation bodies were to be set up in the States having high incidence of leprosy.

Intensive case detection and treatment, application of multi-drug regimen, extensive health education and rehabilitation of cured patients are the main features of the new strategy. Of the estimated 4 million population in the country suffering from leprosy, about 3.28 million have already been detected and 2.97 million brought under treatment. The activities in this sphere include establishment of various leprosy control units/centres, survey, education and treatment centres, temporary hospitalisation wards, reconstructive surgery units, etc. The ultimate object is to eradicate the scourge of leprosy by the year AD 2000.

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(iv) Malaria has been a major public health problem in the country. To combat this disease, the National Malaria Eradication Programme is being implemented vigorously all over the country. Surveillance and spray of insecticides, along with health education on sanitation personal protection measures, etc. are being undertaken under this programme. Research activities are being continued regarding effect of insecticides on vector control and resistance of malaria parasities to common antimalarial medicines. As a result of all this the incidence of malaria has been showing a steady decline. The incidence of this disease showed a decline from 6.47 million cases in 1976 to 1.79 million cases in 1986. Similarly the incidence of p. falcriparum cases showed a decline from 7.5 lakh in 1976 to 6.38 lakh in 1986. The declining trend in the incidence of the disease continued in 1987 also. It has been decided by the Central Government to provide 100 per cent assistance to the States for the cost of malathion required for spray in the areas where the vector mosquitoes for malaria have been found to have developed resistance to BHC and DDT.

(v) A new strategy has been adopted for tackling tuberculosis by detecting as many cases as possible and bringing them under effective treatment. 10.5 lakh cases were detected and brought under treatment during 1982–83. During 1986–87 the number of cases detected was about 14.39 lakh. Considering the high prevalence rate of the disease, the target for detection of new cases for the year 1987–88 was fixed at 15 lakh. Upto the end of the second quarter of the year nearly 9.48 lakh new cases have been detected. At present 371 fully equipped district T.B. centres are functioning in the country.

There are some 46,000 beds for treatment of seriously sick patients.

(vi) A national programme for the control of blindness has been launched to reduce the incidence of blindness from the present level of 1.3 per cent to 0.3 per cent by the year AD 2000. Roughly 8 out of 100 persons need eye care in some form or other. Cataract has been identified as the major cause for blindness. Sample surveys of the population have indicated 55 per cent of the 9 million blind in the country are suffering from cataract. Efforts have been stepped up to detect and control visual impairments. The National Programme for control of blindness envisages the development of various services at the peripheral and intermediate levels. Mobile units provide comprehensive eye care, including surveys in villages and screening of school-going children, besides providing out-patient and surgical treatment. During the five years 1982–83 to 1986–87 the number of cataract operations performed in the country were 9.04 lakh, 10.69 lakh, 11.34 lakh, 12.18 lakh and 11.71 lakh respectively. A target of 12.25 lakh operations has been fixed for 1987–88. Ophthalmic care facilities have been strengthened in 540 primary health centres, 250 district hospitals and 30 medical colleges. All assistance and encouragement is being provided to the non-governmental organisations engaged in the

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conduct of mobile eye camps. A scheme to prevent blindness caused by Vitamin A deficiency among children through oral administration of massive dose of Vitamin A is also in operation. This scheme is implemented in all States and Union territories.

(vii) Diagnostic and treatment facilities for Cancer are being augmented especially at the Regional Centres for Cancer research at Ahmedabad, Bangalore, Calcutta, Cuttack, Delhi, Gauhati, Gwalior, Madras and Trivandrum.

(viii) Efforts for dealing with diarrhoeal disease and control of goitre have been intensified. No state in the country can be called goitre free. Nearly 145 million people are living in the goitre endemic regions of the country. There is a proposal to ensure that all salt used for human consumption is iodised by the year 1990. An outlay of Rs. 20.00 crore has been approved for iodisation of salt during the Seventh Five-Year Plan.

(ix) A Medical Education Review Committee was set up to review the content, quality and relevance of teaching and training in medical institutions. The Committee has already submitted its report and efforts are underway to evolve a National Medical and Health Education Policy.

(x) In furtherance of objectives of Health Policy, efforts have been initiated to generate the required medical and health manpower at various levels.

(xi) Community involvement and participation is the corner-stone of the National Health Policy. The Health Guide Scheme, under which a volunteer selected by the community becomes responsible to it for organising promotive and preventive measures, is the first step in this direction. It envisages the formation of Health Committees in every village to protect the health needs of the community and be involved in the functioning of health services. A programme of training of community leaders and preparing them for assuming higher responsibilities is already being implemented.

(xii) Voluntary organisations play an important role in providing Health and Family Welfare service supplementing the efforts of the Government. The Health Policy envisages active support and involvement of voluntary organisations. Financial assistance is provided by the Government to the voluntary organisations as in the following categories:

(a) T.B., Leprosy, Cancer and other medical institutions on a non-recurring basis for purchase of essential equipment and for additions and alterations to the existing hospital buildings to enable them to expand and improve the existing facilities, and

(b) Organisations which promote and undertake blood donations.

(xiii) While recognising the importance of Indian systems of medicine and Homoeopathy, the Policy lays emphasis on the development of these systems and their involvement in Primary Health Care. Various schemes have been undertaken for improving the quality of education,

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promotion of research programmes and production of herbal and other medicines. In order to facilitate the availability of genuine and effective Ayurvedic and Unani medicines, government have established the Indian Medicine Pharmaceutical Corporation Limited. It has already gone into commercial production. Considerable progress has been made in the preparation of separate pharmacopoeias for some of these systems.

(xiv) With a view to checking adulteration of food stuffs and making the enforcement of the Prevention of Food Adulteration laws more effective, State Governments have been advised to establish separate Departments for prevention of food adulteration and strenghten laboratories and food inspection units.

(xv) To ensure availability of reliable and effective drugs to the people, the Drugs and Cosmetics Act has been amended providing for severe punishment to those engaged in the import, manufacture and sale of spurious and substandard drugs. The Government have also banned the import of certain drugs and prohibited the manufacture and sale of other therapeutically irrational combinations.

(xvi) The Policy stresses the need of medical research relevant to the needs of the society.[10]

DISCUSSION OF THE NATIONAL HEALTH POLICY BY PARLIAMENT

The Rajya Sabha had discussed the National Health Policy on the 2nd, 3rd and 4th August, 1983. Initiating the discussion, the Health Minister Shri B. Shankaranand, said that the objective of the policy was to achieve health for all by AD 2000. He had also drawn attention to the specific targets, set by the Government to be achieved by the years 1985, 1990, 1995 and 2000. In all 20 members participated in the three-day discussion. Replying to the debate Shri Shankaranand said that he was happy that all sections of the House had shown keen interest in the health policy. He added that the policy envisaged the targets, indicated the infrastructure required for achieving the targets, the manpower planning, etc. After the discussions the House rejected the two amendments proposed and adopted the motion that "the House approves the National Health Policy."[11]

On December 15, 1983, the Minister of Health and Family Welfare, Shri B. Shankaranand, moved a resolution in the Lok Sabha for the approval of National Health Policy contained in a statement laid on the Table of the House on November 2, 1982.

Initiating the discussion on December 16, 1983 Shri Shankaranand said that

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[10] L. S. Deb, December 16, 1988, cols. 356–362, Ministry of Health and Family Welfare, *Annual Report*, 1987–88; Introduction and Chapter 1, and R. S. USQ No. 356, dated 25.7.84.

[11] R. S. Deb, August 2–4, 1983.

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the National Health Policy evolved by the Government was aimed at taking the services nearest to the doorsteps of the people and ensuring fuller participation of the community in the health development process. Steps had already been initiated under Sixth Five-Year Plan and the New 20-Point Programme of the Prime Minister for implementation of the policy.

Seventeen members of the House took part in the discussion which lasted for two days. Replying to the debate the Minister said that the Government was evolving a scheme of incentives to doctors to go to rural areas. The Resolution moved by the Minister seeking the approval of the National Health Policy was adopted by the House on 22.12.1983.[12]

OUTLOOK FOR THE SEVENTH PLAN

The Approach Paper to the Seventh Five-Year Plan took note of the goal of health for all by AD 2000. Accordingly it was proposed that primary health care would continue as the main instrument of action to achieve this goal. Special attention is being given to preventive and promotive aspects of health care. The Minimum Needs Programme would try to ensure that effective coordination exists between health and health related services and activities like nutrition, safe drinking water supply and sanitation, housing and education.

Eradication of communicable diseases, control and containment of newly emerging health problems like cancer, coronary heart diseases, hypertension, diabetes, accident, etc. training and education of doctors and paramedical personnel, medical research related to common health problems, standardisation and integration of Indian systems of medicine etc. are the other areas, which have attracted special attention in the Plan.

The long-term goal of reaching a net reproduction rate of 1 by AD 2000 has been recognised in the Plan. Targets for family planning, particularly sterilisations, IUDs, and oral pills have been laid down in this regard. Mother and child health programmes are also given adequate importance.[13]

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[12] L.S. Deb, December 15–16 and 22, 1983.

[13] *Approach to the Seventh Five-Year Plan*, pp. 22–23.

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APPENDIX 7.1A

Pattern of Investment of Health, Family Welfare, Water Supply, etc. (Plan Outlays) in Different Plan Periods in Public Sector—Centre, States and Union Territories

(Rs. in crores)

Sl. No.	*Period*	*Total Plan Investment Outlay (all Heads of Development)*	*Health*	*Family Welfare*	*Sub-total*	*Water Supply and Sanitation*
1	2	3	4	5	6	7
1.	First Plan (1951–56) actuals	1,960.0 (100)	65.2 (3.3)	0.1 (—)	65.3 (3.3)	11.0 (0.56)
2.	Second Plan (1956–61) actuals	4,672.0 (100)	140.8 (3.0)	5.0 (0.1)	145.8 (3.1)	74.0 (1.58)
3.	Third Plan (1961–66)	8,576.5 (100)	228.9 (2.6)	27.0 (0.3)	252.9 (2.9)	105.7 (1.2)
4.	Annual Plans (1966–69) actuals	6,626.4 (100)	140.2 (2.1)	82.9 (1.3)	223.1 (3.4)	102.7 (1.6)
5.	Fourth Plan (1969–74) actuals	15,778.5 (100)	336.5 (2.1)	285.8 (1.8)	621.3 (3.9)	458.9 (2.9)
6.	Fifth Plans (1974–79)	39,426.2 (100)	760.8 (1.9)	497.4 (1.3)	1,258.2 (3.2)	1,091.6 (2.8)
7.	1979–80 (actuals)	12,176.5 (100)	223.1 (1.8)	116.2 (1.0)	339.3 (2.8)	387.6 (3.2)
8.	Sixth Plans (1980–85) outlay	97,500.0 (100)	1,821.1 (1.9)	1,010.0 (1.0)	2,831.1 (2.9)	3,922.0 (4.00)
9.	1980–81 (actuals)	14,832.4 (100)	269.6 (1.8)	140.9 (0.9)	410.5 (2.8)	517.48 (3.5)
10.	1981–82 (actuals)	18,210.9 (100)	346.5 (1.9)	193.0 (1.1)	539.5 (3.0)	640.2 (3.5)
11.	1982–83 (actuals)	21,282.9 (100)	386.9 (1.8)	288.3 (1.4)	675.2 (3.2)	729.6 (3.4)
12.	1983–84 (actuals)	25,087.5 (100)	470.2 (1.9)	382.9 (1.5)	853.1 (3.4)	992.6 (4.0)
13.	1984–85 (R.E.)	30,232.1 (100)	550.4 (1.8)	424.1 (1.4)	974.5 (3.2)	1,097.7 (3.6)
14.	Total Sixth Plan	1,09,645.8 (100)	2,015.5 (1.8)	1,429.2 (1.3)	3,444.7 (3.1)	3,977.7 (3.6)
15.	Seventh Plan (1985–90) outlay	1,80,000.8 (100)	3,392.9 (1.9)	3,256.3 (1.8)	6,649.2 (3.7)	6,522.5 (3.6)
16.	1985–86 (actuals)	33,059.9 (100)	579.9 (1.8)	479.8 (1.4)	1,859.7 (3.2)	1,181.1 (3.6)

(Contd.)

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Appendix 7.1A *Contd.*

Sl. No.	*Period*	*Total Plan Investment Outlay (all Heads of Development)*	*Health*	*Family Welfare*	*Sub-total*	*Water Supply and Sanitation*
1	2	3	4	5	6	7
17.	1986–87 (R.E.)	40,260.7 (100)	683.1 (1.8)	530.0 (1.3)	1,213.1 (3.0)	1,325.0 (3.3)
18.	1987–88 outlay	14,698.4 (100)	822.4 (1.8)	585.8 (1.3)	1,497.4 (3.1)	1,560.9 (3.5)

NOTE: Figures in brackets indicate percentage to total (col. 3).
R.E.: Revised Estimates.
SOURCE: Economic Survey 1987–88 and Planning Commission and Ministry of Health and Family Welfare.

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APPENDIX 7.1B

Seventh Plan Outlays—Health and Family Welfare

(Rs. in crores)

Sl. No.	*Programme*	*State/UTs*	*Centrally Sponsored Programmes*	*Central Schemes*	*Total*
1	2	3	4	5	6
	HEALTH				
1.	Minimum Needs Programme/ Rural Health	1063.35	33.00	—	1096.35
2.	Control of Communicable Diseases	474.67	521.50	16.50	1012.67
3.	Hospitals and Dispensaries	—	—	63.75	—
4.	Medical Education and Training	—	—	75.51	—
5.	ICMR	—	—	100.00	—
6.	Indian System of Medicine and Homoeopathy	957.53	3.25	40.00	1283.87
7.	ESI	—	—	—	—
8.	Other Programmes	—	—	41.83	—
	Total	2495.55	557.75	339.59	3392.89
	Family Welfare		3256.26		3256.26

SOURCE: Planning Commission.

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APPENDIX 7.1C

Seventh Plan Outlays—Health Sector Distribution by States/U.T.s

(Rs. in crores)

Sl. No.	State	Total	MNP	Programmes other than MNP
	States			
1.	Andhra Pradesh	164.20	67.39	96.81
2.	Assam	75.00	28.48	46.52
3.	Bihar	146.40	60.00	86.40
4.	Gujarat	103.14	40.00	63.14
5.	Haryana	78.77	35.46	43.31
6.	Himachal Pradesh	26.25	10.03	16.22
7.	Jammu & Kashmir	63.06	24.07	38.99
8.	Karnataka	118.00	50.00	68.00
9.	Kerala	52.00	24.00	28.00
10.	Madhya Pradesh	157.33	75.00	82.33
11.	Maharashtra	374.00	195.17	178.83
12.	Manipur	13.00	6.00	7.00
13.	Meghalaya	16.00	7.00	9.00
14.	Nagaland	15.00	4.50	10.50
15.	Orissa	54.50	17.00	37.50
16.	Punjab	103.50	40.00	63.50
17.	Rajasthan	82.57	34.00	48.57
18.	Sikkim	5.81	2.00	3.81
19.	Tamilnadu	150.00	50.00	100.00
20.	Tripura	13.00	5.00	8.00
21.	Uttar Pradesh	300.80	200.00	100.80
22.	West Bengal	128.00	68.00	60.00
	Total: States	2240.33	1043.10	1197.23
	Union Territory			
1.	Andaman & Nicobar Islands	4.00	2.22	1.78
2.	Arunachal Pradesh	14.50	6.95	7.55
3.	Chandigarh	9.00	1.55	7.85
4.	Dadra and Nagar Haveli	1.42	0.56	0.86
5.	Delhi	180.86	Nil	180.86
6.	Goa, Daman & Diu	24.44	1.32	23.12
7.	Lakshadweep	1.00	0.46	0.54
8.	Mizoram	14.00	6.75	7.25
9.	Pondicherry	6.00	0.84	5.16
	Total U.T.s:	255.22	20.25	234.97
	GRAND TOTAL: States and U.T.s	2495.55	1063.35	1432.20

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APPENDIX 7.1D

Per Capita (Public Sector) Expenditure on Health (Medical and Public Health) and Family Welfare during the Years 1983–84 to 1985–86

Sl. No.	State/U.T.	1983–84 (Rs.)		1984–85 (Rs.)		1985–86 (Rs.)	
		Health	F.W.	Health	F.W.	Health	F.W.
1.	Andhra Pradesh	31.32	5.69	33.28	6.56	39.09	7.86
2.	Arunachal Pradesh	157.01	1.32	218.86	2.17	246.24	1.62
3.	Assam	30.04	3.68	42.80	5.56	44.93	6.36
4.	Bihar	15.22	3.37	18.44	3.40	23.79	4.52
5.	Goa, Damán & Diu	176.71	3.50	187.46	5.21	224.31	4.17
6.	Gujarat	35.26	7.60	42.55	8.21	44.45	9.40
7.	Haryana	46.70	7.00	59.10	6.96	60.05	8.79
8.	Himachal Pradesh	94.90	15.67	117.87	13.07	133.08	15.44
9.	Jammu & Kashmir	130.55	3.36	144.86	3.42	156.10	4.42
10.	Karnataka	24.98	4.80	31.58	5.62	34.24	8.86
11.	Kerala	49.65	4.41	47.15	7.14	45.36	9.12
12.	Madhya Pradesh	30.10	5.10	32.54	5.33	40.67	7.00
13.	Maharashtra	45.04	6.62	49.84	6.49	63.43	6.82
14.	Manipur	98.07	10.05	112.12	10.29	133.73	12.14
15.	Meghalaya	187.96	9.91	150.32	8.49	N.A.	N.A.
16.	Mizoram	194.30	12.58	235.55	11.25	329.05	10.47
17.	Nagaland	281.70	8.02	345.27	9.89	N.A.	N.A.
18.	Orissa	32.47	5.01	32.73	5.03	33.32	6.75
19.	Punjab	41.77	6.25	45.52	6.32	55.37	8.07
20.	Rajasthan	50.22	4.86	61.59	5.17	65.87	6.95
21.	Sikkim	110.98	7.08	106.77	9.14	170.86	12.84
22.	Tamil Nadu	50.76	4.63	40.84	5.39	47.57	5.23
23.	Tripura	55.99	3.96	64.01	4.18	73.32	4.49
24.	Uttar Pradesh	21.47	5.52	25.60	5.71	26.51	6.78
25.	West Bengal	32.40	3.85	34.96	3.65	37.54	4.64
26.	Pondicherry	104.99	5.35	127.03	5.11	153.47	6.21
	ALL INDIA	37.20	5.41	41.24	5.88	46.23	7.19

NOTES:

1. All India total includes Union Government expenditure (Expenditure in respect of Central Government and U.T. of A & N Islands, Chandigarh, D & N Haveli, Delhi and Lakshadweep).
2. Figures for year 1984–85 in respect of the States of Assam, J&K, M.P., Meghalaya, Nagaland, Rajasthan, Tripura, Mizoram and Arunachal Pradesh are provisional as the Finance Accounts of these States have not yet been finalised.
3. The figures for the year 1985–86 in respect of Andhra Pradesh, Assam, Bihar, Maharashtra, Tripura and Rajasthan are provisional.

SOURCES:

1. The expenditure figures (Revenue & Capital) on Medical, Public Health & F.W. for the years 1983–84 to 1985–86 have been obtained from the Comptroller & Auditor General of India.
2. The per capita expenditure for respective years have been worked out on the basis of mid-year estimated population furnished by the Registrar General of India.

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APPENDIX 7.1E

Statement showing Physical Targets and Achievements under Rural Health Programme during Seventh Plan 1985–90

Sl. No.	*Item/Programme*	*Unit*	*Total Requirement*	*Position likely by 1.4.85*	*Target Set for 1985–90*
1	2	3	4	5	6
1.	Health Guides	Nos.	4,50,000	3,50,000	1,00,000
2.	Sub-Centres	Nos.	1,37,000	83,000	54,000
3.	Primary Health Centres/SHCs	Nos.	23,000	11,000	12,000
4.	Community Health Centres	Nos.	5,417	649	1,553
5.	Training of Female MPWs	Nos.	1,30,000	80,000	60,000
6.	Training of Male MPWs	Nos.	1,30,000	80,000	60,000
7.	Employment of Male MPWs	Nos.	1,30,000	80,000	50,000
8.	Training and Employment of Female Health Assistants	Nos.	21,500	15,000	6,500
9.	Training and Employment of Male Health Assistants	Nos.	21,500	15,000	6,500

10. Construction Works	Numbers likely by 1989–90	Centres having building of their own by 1.4.85	Construction works projected in Seventh Plan	Percentage in own building by end of Seventh Plan
(a) Sub-Centres	1,37,000	33,475	23,837	40
(b) PHCs/SHCs	23,000	8,578	10,057	80
(c) Community Health Centres	2,202	547	1,539	90

SOURCE: Planning Commission, *Seventh Five-Year Plan*, 1985–90, Vol. II.

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APPENDIX 7.2

Establishment of Primary Health Centres and Sub-Centres in India since First Five-Year Plan

	PHC's	
First Plan	725	
Second Plan	2,565	
Third Plan	4,631	
INTER-PLAN PERIOD 3 YEARS	PHC's	Sub-Centres
As on 31–3–1967	4,793	17,521
As on 31–3–1968	4,946	21,539
As on 31–3–1969	4,919	22,826
4TH FIVE-YEAR PLAN		
As on 31–3–1970	5,015	23,527
As on 31–3–1971	5,112	28,489
As on 31–3–1972	5,183	28,167
As on 31–3–1973	5,248	31,034
As on 31–3–1974	5,283	33,509
5TH FIVE-YEAR PLAN		
As on 31–3–1975	5,293	33,616
As on 31–3–1976	5,328	34,086
As on 31–3–1977	5,380	38,110
As on 31–3–1978	5,400	38,115
As on 31–3–1979	5,423	40,124
As on 31–3–1980	5,484	47,112
6TH FIVE-YEAR PLAN		
As on 31–3–1981	5,740	51,405
As on 31–3–1982	5,851	57,975
As on 31–3–1983	5,959	65,643
As on 31–3–1984	6,375	74,236
As on 31–3–1985	7,284	84,590
7TH FIVE-YEAR PLAN		
As on 31–3–1986	12,534*	92,483
As on 31–3–1987	14,281*	1,01,549
As on 31–3–1988	14,609*	1,02,674

* Includes subsidiary Health Centres also.

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APPENDIX 7.3

No. of PHCs and Sub-Centres Required and in Position in Tribal Areas as on 31–12–1987

Sl. No.	State/U.T.s	Population in TSP Area and in Tribal Pockets (in lakhs)		PHCs		SHCs	Sub-Centres
		Total	Tribal	Required	In Position	Required	In Position
1	2	3	4	5	6	7	8
1.	Andhra Pradesh	27.4	23.0	137	34	915	273
2.	Assam	24.1	13.1	121	56	804	349
3.	Bihar	84.75**	40.78	424	143	2825	1714
4.	Gujarat	61.30	41.48	284	114	1747	1590
5.	Himachal Pradesh	1.97	1.33	10	18	57	60
6.	Karnataka	63.46	11.23	257	115	1635	981
7.	Kerala	1.6	1.2	8	21	70	76
8.	Madhya Pradesh	150.58	105.3	752	449	5019	2648
9.	Maharashtra	45.23	25.7	237	237	1662	1593
10.	Manipur	4.9	3.9	25	26	163	187
11.	Orissa	63.5**	45.3	318	295	2117	1225
12.	Rajasthan	42.58	26.78	214	71	1387	564
13.	Sikkim	0.3	0.2	2	3	10	8
14.	Tamil Nadu	2.5	2.1	12	2	70	79
15.	Tripura	6.6	4.5	33	17	222	160
16.	Uttar Pradesh	43.8	2.3	219	24	1460	220
17.	West Bengal	32.58*	17.30*	92	21	613	91
18.	Goa, Daman & Diu	0.5	0.1	2	1	17	8
19.	A&N Islands	0.4	0.2	4	2	21	10
20.	Meghalaya	13.4	10.8	67	48	446	278
21.	Nagaland	7.8	6.5	40	24	267	193
22.	Arunachal Pradesh	6.3	4.4	32	34	210	77
23.	Mizoram	4.9	4.6	25	26	163	186
24.	D&N Haveli	1.0	0.8	5	4	35	26
25.	Lakshadweep	0.4	0.4	2	7	13	14
	Total	691.85	393.03	3322	1792	21948	12610

NOTE: States/U.T.s at serial No. 20 to 25 are predominantly tribal and their total plans are for tribal development.

Information in col. Nos.3 & 4 is based on the report of the Seventh Plan Working Group on Tribal Development.

* Provisional.

** Rural population of TSP area. (Figures are provisional)

SOURCE: RHD.

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APPENDIX 7.4

Population per Bed, Physician and Midwife Nurse for Selected Countries

Sl. No.	*Name of the Country*	*Population per*					
		Year	*Bed*	*Year*	*Physician*	*Year*	*Midwife/ Nurse*
1.	Afghanistan	1981	3700	1981	13467	1981	9111
2.	Argentina	1969	180	1975	530	1973	93
3.	Australia	1980	150	1980	556	1980	146
4.	Bangladesh	1981	4545	1981	8908	1981	15005
5.	Brazil	1976	245	1974	1650	1974	2280
6.	Burma	1981	1226	1981	4940	1981	1649
7.	Canada	1978–1979	70	1979	548	1978	130
8.	Egypt	1981	500	1981	815	1981	771
9.	France	1977	82	1977	580	1977	151
10.	Germany (D.R.)	1978	94	1980	494	†	†
11.	German (F.R.)	1980	87	1980	442	1980	181
12.	India	1986	1398	1985	2450	1985	2036
13.	Indonesia	1979	1787	1979	11973	1979	1070
14.	Japan	1981	86	1981	761	1981	209
15.	Kenya	1978	601	1978	10136	1978	1039
16.	Libya	1981	201	1981	660	1981	319
17.	Malaysia (Peninsular)	1981	370	1980	3267	1980	541
18.	Mexico	1974	860	1974	1250	1974	1400
19.	Nepal	1980	5477	1980	28768	1980	7448
20.	Pakistan	1981	1746	1981	3172	1981	4492
21.	Srilanka	1981	340	1981	7631	1981	1453
22.	Thailand	1980	658	1980	6870	1980	1104
23.	U.K., England and Wales	1980	127	1979	711	1979	207
24.	U.S.S.R.	1978	82	1979	274	†	†
25.	U.S.A.	1980	171	1980	549	1980	190

SOURCE: World Health Organisation.
† Not Applicable.

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APPENDIX 7.5

Government Health Expenditure in Different Countries

Sl. No.	*Name of the Country*	*Percentage of Govt. Health Expenditure to Total Govt. Expenditure*		
		1983	1984	1985
1	2	3	4	5
	WORLD	9.62	9.83	—
A.	INDUSTRIAL COUNTRIES	11.30	11.53	—
	United States E%	10.65	11.04	11.29
	Canada G**	6.27	6.35	—
	Australia C*	7.12	7.85	9.55
	Japan	—	—	—
	France C	14.50	—	—
	Germany D	18.64	18.74P	—
	United Kingdom C	—	—	—
B.	MEMORANDUM ITEMS			
(i)	Oil Exporting Countries	4.92	5.23	—
(ii)	New Oil Developing Countries	3.87	3.99	—
C.	DEVELOPING COUNTRIES	4.07	4.22	—
(i)	Africa	—	—	—
	Ghana	—	8.58	9.80
	Kenya A*	6.96	6.73	—
	Mauritius A*	7.84	8.10	7.56
	Sudan A*	—	—	—
(ii)	Asia	3.04	3.05	—
	Bangladesh*	4.09P	—	—
	Burma A**	6.87	7.35	—
	India E**	2.42	2.40P	—
	Indonesia**	2.21	2.54	—
	Malaysia	—	—	—
	Nepal†	4.65	4.39	4.97
	Pakistan B*	1.04	1.10	—
	Philippines A	5.48	5.02	5.95P
	Sri Lanka A	5.12	3.58	—
	Thailand B%	5.01	5.43	5.69
(iii)	Europe	2.99	2.84	—
	Yugoslavia G	—	—	—
(iv)	Middle East	5.28	5.68	—
	Egypt A*	2.84	2.42	2.45P
(v)	Western Hemisphere	4.67	4.92	—
	Argentina	1.37	1.81	—
	Brazil D	7.29	7.64	—
	Mexico C	1.20	1.52	—

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Appendix 7.5 *Contd.*

NOTES: Letters A–G, following country name indicate percentage of general government tax revenue accounted for by Central Government, for the latest year with available data, as follows:

A, 95 and over; B, 90–94.9; C, 80–89.9; D, 70–79.9; E, 60–68.9; F, 50–59.9; and G, 20–24.9.

Symbol * indicates break in continuity of time series as described in country notes on coverage of data.

Most recent fiscal years, other than those ending Dec., 31, are indicated, beginning April, 1; *, ending June 30; %, ending Sept., 30; and†, other.

The letter P indicates that data are in whole or in part provisional, preliminary, or projected.

SOURCE: International Monetary Fund, *Government Finance Statistics Year Book 1986*, Volume X, pp. 54–55.

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APPENDIX 7.6

National Health Policy

Introductory

1. The Constitution of India envisages the establishment of a new social order based on equality, freedom, justice and the dignity of the individual. It aims at the elimination of poverty, ignorance and ill-health and directs the State to regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties, securing the health and strength of workers, men and women, specially ensuring that children are given opportunities and facilities to develop in a healthy manner.

1.2 Since the inception of the planning process in the country, the successive Five-Year Plans have been providing the framework within which the States may develop their health services infrastructure, facilities for medical education, research, etc. Similar guidance had sought to be provided through the discussions and conclusions arrived at in the Joint Conferences of the Central Councils of Health and Family Welfare and the National Development Council. Besides, Central legislaltion has been enacted to regulate standards of medical education, prevention of food adulteration, maintenance of standards in the manufacture and sale of certified drugs, etc.

1.3 While the broad approaches contained in the successive Plan documents, and discussions in the forums referred to in para 1.2 may have generally served the needs of the situation in the past, it is felt that an integrated, comprehensive approach towards the future development of medical education, research and health services requires to be established to serve the actual health needs and priorities of the country. It is in this context that the need has been felt to evolve a National Health Policy.

Our Heritage

2. India has a rich, centuries-old heritage of medical and health sciences. The philosophy of Ayurveda and the surgical skills enunciated by Charaka and Shusharuta bear testimony to our ancient tradition in the scientific health care of our people. The approach of our ancient medical systems was of a holistic nature, which took into account all aspects of human health and disease. Over the centuries, with the intrusion of foreign influences and mingling of cultures, various systems of medicine evolved and have continued to be practised widely. However, the allopathic system of medicine has, in a relatively short period of time, made a major impact on the entire approach to health care and pattern of development of the health services infrastructure in the country.

Progress Achieved

3. During the last three decades and more, since the attainment of Independence, considerable progress has been achieved in the various aspects of the health

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status of our people. Smallpox has been eliminated; plague is no longer a problem; mortality from cholera and related diseases has decreased and malaria brought under control to a considerable extent. The mortality rate per thousand of population has been reduced from 27.4 to 14.8 and the life expectancy at birth has increased from 32.7 to over 52. A fairly extensive network of dispensaries, hospitals and institutions providing specialised curative care has developed and a large stock of medical and health personnel of various levels, has become available. Significant indigenous capacity has been established for the production of drugs and pharmaceuticals, vaccines, sera, hospital equipments, etc.

The Existing Picture

4. In spite of such impressive progress, the demographic and health picture of the country still constitutes a cause for serious and urgent concern. The high rate of population growth continues to have an adverse effect on the health of our people and the quality of their lives. The mortality rates for women and children are still distressingly high; almost one third of the total deaths occur among children below the age of 5 years; infant mortality is around 129 per thousand live births. Efforts at raising the nutritional levels of our people have still to bear fruit and the extent and severity of malnutrition continues to be expectionally high. Communicable and non-communicable diseases have still to be brought under effective control and eradicated. Blindness, Leprosy and T.B. continue to have a high incidence. Only 31 per cent of the rural population has access to potable water supply and 0.5 per cent enjoys basic sanitation.

4.1 High incidence of diarrhoeal diseases and other preventive and infectious diseases, specially amongst infants and children, lack of safe drinking water and poor environmental sanitation, poverty and ignorance are among the major contributory causes of the high incidence of disease and mortality.

4.2 The existing situation has been largely engendered by the almost wholesale adoption of health manpower development policies and the establishment of curative centres based on the Western models, which are inappropriate and irrelevant to the real needs of our people and the socio-economic conditions obtaining in the country. The hospital-based disease and cure-oriented approach towards the establishment of medical services has provided benefits to the upper crusts of society, specially those residing in the urban areas. The proliferation of this approach has been at the cost of providing comprehensive primary health care services to the entire population, whether residing in the urban or the rural area. Furthermore, the continued high emphasis on the curative approach has led to the neglect of the preventive, promotive, public health and rehabilitative aspects of health care. The existing approach, instead of improving awareness and building up self-reliance, has tended to enhance dependency and weaken the community's capacity to cope with its problems. The prevailing policies in regard to the education and training of medical and health personnel, at various levels has resulted in the development of a cultural gap between the people and the personnel providing care. The various health programmes have, by and large, failed to involve individuals and families in

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establishing a self-reliant community. Also, over the years, the planning process has become largely oblivious of the fact that the ultimate goal of achieving a satisfactory health status for all our people cannot be secured without involving the community in the identification of their health needs and priorities as well as in the implementation and management of the various health and related programmes.

Need for Evolving a Health Policy—The Revised 20-Point Programme

5. India is committed to attaining the goal of "Health for All by the Year AD 2000" through the universal provision of comprehensive primary health care services.The attainment of this goal requires a thorough overhaul of the existing approaches to the education and training of medical and health personnel and the reorganisation of the health services infrastructure. Furthermore, considering the large variety of inputs into health, it is necessary to secure the complete integration of all plans for health and human development with the overall national socio-economic development process, specially in the more closely health related sectors, e.g., drugs and pharmaceuticals, agriculture and food production, rural development, education and social welfare, housing, water supply and sanitation, prevention of food adulteration, maintenance of prescribed standards in the manufacture and sale of drugs and the conservation of the environment. In sum, the contours of the National Health Policy have to be evolved within a fully integrated planning framework which seeks to provide universal, comprehensive primary health care services, relevant to the actual needs and priorities of the community at a cost which the people can afford, ensuring that the planning and implementation of the various health programmes is through the organised involvement and participation of the community, adequately utilising the services being rendered by private voluntary organisations active in the Health sector.

5.1 It is also necessary to ensure that the pattern of development of the health services infrastructure in the future fully takes into account the revised 20-Point Programme. The said Programme attributes very high priority to the promotion of family planning as a people's programme, on a voluntary basis; substantial augmentation and provision of primary health care facilities on a universal basis; control of Leprosy, T.B. and Blindness; acceleration of welfare programmes for women and children; nutrition programmes for pregnant women, nursing mothers and children, especially in the tribal, hill and backward areas. The Programme also places high emphasis on the supply of drinking water to all problem villages, improvements in the housing and environments of the weaker sections of society; increased production of essential food items, integrated rural developments; spread of universal elementary education; expansion of the public distribution system, etc.

Population Stabilisation

6. Irrespective of the changes, no matter how fundamental, that may be brought about in the overall approach to health care and the restructuring of the

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health services, not much headway is likely to be achieved in improving the health status of the people unless success is achieved in securing the small family norm, through voluntary efforts, and moving towards the goal of population stabilisation. In view of the vital importance of securing the balanced growth of the populaltion, it is necessary to enunciate, separately, a National Populaltion Policy.

Medical and Health Education

7. It is also necessary to appreciate that the effective delivery of health care services would depend very largely on the nature of education, training and appropriate orientation towards community health of all categories of medical and health personnel and their capacity to function as an integrated team, each of its members performing given tasks within a coordinated action programme. It is, therefore, of crucial importance that the entire basis and approach towards medical and health education, at all levels, is reviewed in terms of national needs and priorities and the curricular and training programmes restructured to produce personnel of various grades of skill and competence, who are professionally equipped and socially motivated to effectively deal with day-to-day problems, within the existing constraints. Towards this end, it is necessary to formulate, separately a National Medical and Health Education Policy which (i) sets out the changes required to be brought about in the curricular contents and training programme of medical and health personnel, at various levels of functioning; (ii) takes into account the need for establishing the extremely essential inter-relations between functionaries of various grades; (iii) provides guidelines for the production of health personnel on the basis of realistically assessed manpower requirements; (iv) seeks to resolve the existing sharp regional imbalances in their availability; and (v) ensures that personnel at all levels are socially motivated towards the rendering of community health services.

Need for Providing Primary Health Care with Special Emphasis on the Preventive, Promotive and Rehabilitative Aspects

8. Presently, despite the constraint of resources, there is disproportionate emphasis on the establishment of curative centres—dispensaries, hospitals, institutions for specialists treatment—the large majority of which are located in the urban areas of the country. The vast majority of those seeking medical relief have to travel long distance to the nearest curative centre, seeking relief for ailments which could have been readily and effectively handled at the community level. Also, for want of a well established referral system, those seeking curative care have the tendency to visit various specialist centres, thus further contributing to congestions, duplication of efforts and consequential waste of resources. To put an end to the existing all-round unsatisfactory situation, it is urgently necessary to restructure the health services within the following broad approach:

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(1) To provide, within a phased time-bound programme a well dispersed network of comprehensive primary health care services, integrally linked with the extension and health education approach which takes into account the fact that a large majority of health functions can be effectively handled and resolved by the people themselves, with the organised support of volunteers, auxiliaries, para-medics and adequately trained multi-purpose workers of various grades of skill and competence, of both sexes. There are a large number of private, voluntary organisations active in the health field, all over the country. Their services and support would require to be utilised and intermeshed with the governmental efforts, in an integrated manner.

(2) To be effective, the establishment of the primary health care approach would involve large scale transfer of knowledge, simple skills and technologies of Health Volunteers, selected by the communities and enjoying their confidence. The functioning of the front line workers, selected by the community would require to be related to definitive action plans for the translation of medical and health knowledge into practical action, involving the use of simple and inexpensive interventions which can be readily implemented by persons who have undergone short periods of training. The quality of training of these health guides/workers would be of crucial importance to the success of this approach.

(3) The success of the decentralised, primary health care system would depend vitally on the organised building up of individual self-reliance and effective community participation; on the provision of organised back-up support of the secondary and tertiary levels of the health care services, providing adequate logistical and technical assistance.

(4) The decentralisation of services would require the establishment of a well worked out referral system to provide adequate expertise at the various levels of the organisational set-up nearest to the community, depending upon the actual needs and problems of the area, and thus ensure against the continuation of the existing rush towards the curative centres in the urban areas. The effective establishment of the referral system would also ensure the optimal utilisation of expertise at the higher levels of the hierarchical structure. This approach would not only lead to the progressive improvement of comprehensive health care services at the primary level but also provide for timely attention being available to those in need of urgent specialist care, whether they live in the rural or the urban areas.

(5) To ensure that the approach to health care does not merely constitute a collection of disparate health interventions but consists of an integrated package of services seeking to tackle the entire range of poor health conditions, on a broad front, it is necessaary to establish a nation-wide chain of sanitary-cum-epidemiological stations. The location and functioning of these stations may be between the primary and secondary levels of the hierarchical structure, depending upon the local situations

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and other relevant considerations. Each such station would require to have suitably trained staff equipped to identify, plan and provide preventive, promotive and mental health care services. It would be beneficial, depending upon the local situations, to establish such stations at the Primary Health Centres. The district health organisation should have, as an integral part of its set-up, a well organised epidemiological unit to coordinate and superintend the functioning of the field stations. These stations would participate in the integrated action plans to eradicate and control diseases, besides tackling specific local environmental health problems. In the urban agglomerations, the municipal and local authorities should be equipped to perform similar functions, being supported with adequate resources and expertise, to effectively deal with the local preventable public health problems. The aforesaid approach should be implemented and extended through community participation and contributions, in whatever form possible to achieve meaningful results within a time-bound programme.

(6) The location of curative centres should be related to the populations they serve, keeping in view the densities of population, distances, topography and transport connections. These centres should function within the recommended referral system, the gamut of the general specialities required to deal with the local disease patterns being provided as near to the community as possible, at the secondary level of the hierarchical organisation. The concept of domiciliary care and the field-camps approach should be utilised to the fullest extent to reduce the pressures on these centres, specially in efforts relating to the control and eradication of Blindness, Tuberculosis, Leprosy, etc. To maximise the utilisation of available resources, new and additional curative centres should be established only in exceptional cases, the basic attempt being towards the upgradation of existing facilities, at selected locations, the guiding principle being to provide specialist services as near to the beneficiaries as may be possible, within a well-planned network. Expenditure should be reduced through the fullest possible use of cheap locally available building materials, resort to appropriate architectural designs and engineers concepts and by economical investment in the purchase of machineries and equipments, ensuring against avoidable duplication of such acquisitions. It is also necessary to devise effective mechanisms for the repair, maintenance and proper up keep of all bio-medical equipments to secure their maximum utilisation.

(7) With a view to reducing governmental expenditure and fully utilising untapped resources, planned programmes may be devised, related to the local requirements and potentials to encourage the establishment of practice by private medical professional, increased investment by non-governmental agencies in establishing curative centres and by offering organised logistical, financial and technical support to voluntary agencies active in the health field.

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(8) While the major focus of attention in restructuring the existing governmental health organisations would relate to establishing comprehensive primary health care and public health services, within an integrated referral system, planned attention would also require to be devoted to the establishment of centres equipped to provide speciality and super-speciality services, through a well dispersed network of centres, to ensure that the present and future requirements of specialist treatment are adequately available within the country. To reduce governmental expenditures involved in the establishment of such centres, planned efforts should be made to encourage private investments in such fields so that the majority of such centres, within the governmental set-up, can provide adequate care and treatment to those entitled to free care, the affluent sectors being looked after by the paying clinics. Care would also require to be taken to ensure the appropriate dispersal of such centres, to remove the existing regional imbalances and to provide services within the reach of all, whether residing in the rural or the urban areas.

(9) Special, well-coordinated programmes should be launched to provide mental health care as well as medical care and the physical and social rehabilitation of those who are mentally retarded, deaf, dumb, blind, physically disabled, infirm and the aged. Also, suitably organised programmes would require to be launched to ensure against the prevention of various disabilities.

(10) In the establishment of the re-organised services, the first priority should be accorded to provide services to those residing in the tribal, hill and backward areas as well as to endemic disease affected populations and the vulnerable sections of the society.

(11) In the re-organised health services scheme, efforts should be made to ensure adequate mobility of personnel, at all levels of functioning.

(12) In the various approaches, set out in (1) to (11) above, organised efforts would require to be made to fully utilise and assist in the enlargement of the services being provided by private voluntary organisations active in the health field. In this context, planning encouragement and support would also require to be afforded to fresh voluntary efforts, specially those which seek to serve the needs of the rural areas and the urban slums.

Re-orientation of the Existing Health Personnel

9. A dynamic process of change and innovation is required to be brought about in the entire approach to health manpower development, ensuring the emergence of fully integrated bands of workers functioning within the "Health Team" approach.

Private Practice by Governmental Functionaries

10. It is desirable for the States to take steps to phase out the system of private practice by medical personnel in government service, providing at the same

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time for payment of appropriate compensatory non-practising allowance. The States would require to carefully review the existing situation, with special reference to the availability and dispersal of private practitioners, and take timely decisions in regard to this vital issue.

Practitioners of Indigenous and Other Systems of Medicine and Their Role in Health Care

11. The country has a large stock of health manpower comprising of private practitioners in various systems, for example, Ayurveda, Unani, Sidha, Homoeopathy, Yoga, Naturopathy, etc. This resource has not so far been adequately utilised. The practitioners of these various systems enjoy high local acceptance and respect and consequently exert considerable influence on health beliefs and practices. It is, therefore, necessary to initiate organised measures to enable each of these various systems of medicine and health care to develop in accordance with its genius. Simultaneously, planned efforts should be made to dovetail the functioning of the practitioners of these various systems and integrate their services at the appropriate levels, within specified areas of responsibility and functioning, in the overall health care delivery system, specially in regard to the preventive, promotive and public health objectives. Well considered steps would also require to be launched to move towards a meaningful phased integration of the indigenous and the modern systems.

Problems Requiring Urgent Attention

12. Besides the recommended restructuring of the health services infrastructure, reorientation of the medical and health manpower, community involvement and exploitation of the services of private medical practitioners, specially those of the traditional and other systems, involvement and utilisation of the services of the voluntary agencies active in the health field, etc., it would be necessary to devote planned, time-bound attention to some of the more important inputs required for improved health care. Of these, priority attention would require to be devoted to:

(i) *Nutrition* National and regional strategies should be evolved and implemented, on a time-bound basis, to ensure adequate nutrition for all segments of the population through a well developed distribution system, specially in the rural areas and urban slums. Food of acceptable quality must be available to every person in accordance with his physical needs. Low cost, processed and ready-to-eat foods should be produced and made readily available. The overall strategy would necessarily involve organised efforts at improving the purchasing power of the poorer sections of the society. Schemes like employment guarantee scheme, to which the government is committed, could yield optimal results if these are suitably linked to the objective of providing adequate nutrition and health cover to the rural and the urban poor. The achievement of this objective is dependent on integrated socio-economic development leading to the generation of productive employment for all those constituting the labour force.

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Employment guarantee scheme and similar efforts would require to be specially enforced to provide social security for identified vulnerable sections of the society. Measures aimed at improving eating habits inculcation of desirable nutritional practices, improved and scientific utilisation of available food materials and the effective popularisation of improved cooking practices would require to be implemented. Besides, a nation-wide programme to promote breast feeding of infants and eradication of various social taboos detrimental to the promotion of health would need to be initiated. Simultaneously, the problems of communities afflicted by chronic nutritional disorders should be tackled through special schemes including the organisation of supplementary feeding programmes directed to the vulnerable sections of the population. The force and effect of such programmes should be ensured by delivering them within the setting of fully integrated health care activities to ensure the inculcation of the educational aspects, in the overall strategy.

(ii) *Prevention of Food Adulteration and Maintenance of the Quality of Drugs* Stringent measures are required to be taken to check and prevent the adulteration and contamination of foods at the various stages of their production, processing, storage, transport, distribution, etc. To ensure uniformity of approach, the existing laws would require to be reviewed and effective legislation enacted by the Centre. Similarly, the most urgent measures require to be taken to ensure against the manufacture and sale of spurious and sub-standard drugs.

(iii) *Water Supply and Sanitation* The provision of safe drinking water and the sanitary disposal of waste waters, human and animal wastes, both in urban and rural areas, must constitute an integrated package. The enormous backlog in the provision of these services to the rural population and in the urban agglomerations must be made up on the most urgent basis. The provision of water supply and basic sanitation facilities would not automatically improve health. The availability of such facilities should be accompanied by intensive health education campaigns for the improvement of personal hygiene, the economical use of water and the sanitary disposal of waste in a manner that will improve individual and community health. All water-supply schemes must be fully integrated with efforts at proper water management, including the drainage and disposal of waste waters. To reduce expenditures and for achieving a quick headway it would be necessary to devise appropriate technologies in the planning and management of the delivery systems. Besides, the involvement of the community in the implementation and management of the systems would be of crucial importance, both for reducing costs as well as to see that the beneficiaries value and protect the services provided to them.

(iv) *Environmental Protection* While preventive, promotive, public health services are established and the curative services reorganised to prevent, control and treat diseases, it would be equally necessary to ensure against the haphazard exploitation of resources which cause ecological disturbances leading to fresh

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health hazards. It is, therefore, necessary that economic development plans, in the various sectors, are devised in adequate consultation with the Central and the State health authorities. It is also vitally essential to ensure that the present and future industrial and urban development plans are centrally reviewed to ensure against congestions, the unchecked release of noxious emissions and the pollution of air and water. In this context, it is vital to ensure that the siting and location of all manufacturing units is strictly regulated, through legal measures, if necessary. Central and State health authorities must necessarily be consulted in establishing locational policies for industrial development and urbanisation programmes. Environmental appraisal procedures must be developed and strictly applied in according clearance to the various developmental projects.

(v) *Immunisation Programme* It is necessary to launch an organised, nation-wide immunisation programme, aimed at cent per cent coverage of targetted population groups with vaccines against preventable and communicable diseases. Such an approach would not only prevent and reduce disease and disability but also bring down the existing high infant and child mortality rate.

(vi) *Maternal and Child Health Services* A vicious relationship exists between high birth rates and high infant mortality, contributing to the desire for more children. The highest priority would, therefore, require to be devoted to efforts at launching special programmes for the improvement of maternal and child health, with a special focus on the less privileged sections of society. Such programmes would require to be decentralised to the maximum possible extent, their delivery being at the primary level, nearest to the doorsteps of the beneficiaries. While efforts should continue at providing refresher training and orientation to the traditional birth attendants, schemes ând programmes should be launched to ensure that progressively all deliveries are conducted by competently trained persons so that complicated cases receive timely and expert attention, within a comprehensive programme providing ante-natal, intra-natal and post-natal care.

(vii) *School Health Programme* Organised school health services, integrally linked with the general, preventive and curative services, would require to be established within a time-limited programme.

(viii) *Occupational Health Services* There is urgent need for launching well-considered schemes to prevent and treat diseases and injuries arising from occupational hazards, not only in the various industries but also in the comparatively unorganised sectors like agriculture. For this purpose, the coverage of the Employees State Insurance Act, 1948, may be suitably extended ensuring adequate coordination of efforts with the general health services.In their respective spheres of responsibility, the Centre and the States must introduce organised occupational health services to reduce morbidity, disabilities and mortality and thus promote better health and increased welfare and productivity on all fronts.

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Health Education

13. The recommended efforts, on various fronts, would bear only marginal results unless nation-wide health education programmes, backed by appropriate communication strategies are launched to provide health information in easily understandable form, to motivate the development of an attitude for healthy living. The public health education programmes should be supplemented by health, nutrition and population education programmes in all educational institutions, at various levels. Simultaneously, efforts would require to be made to promote universal education, specially adult and family education, without which the various efforts to organise preventive and promotive health activities, family planning and improved maternal and child health cannot bear fruit.

Management Information System

14. Appropriate decision making and programme planning in the health and related fields is not possible without establishing an effective health information system. A nation-wide organisational set-up should be established to procure essential health information. Such information is required not only for assisting in planning and decision making but also to provide timely warnings about emerging health problems and for reviewing, monitoring and evaluating the various on-going health programmes. The building up of a well conceived health information system is also necessary for assessing medical and health manpower requirements and taking timely decisions, on a continuing basis, regarding the manpower requirements in the future.

Medical Industry

15. The country has built up sound technological and manufacturing capability in the field of drugs, vaccines, bio-medical equipments, etc.The available know-how requires to be adequately exploited to increase the production of essential and life saving drugs and vaccines of proven quality to fully meet the national requirements, specially in regard to the national programmes to combat Malaria, T.B., Leprosy, Blindness, Diarrhoeal diseases, etc. The production of the essential, life saving drugs under their generic names and the adoption of economical packaging practices would considerably reduce the unit cost of medicines bringing them within the reach of the poorer sections of society, besides significantly reducing the expenditures being incurred by the governmental organisation on the purchase of drugs. In view of the low cost of indigenous and herbal medicines, organised efforts may be launched to establish herbal gardens, producing drugs of certified quality and making them easily available.

15.1 The practitioners of the modern medical system rely heavily on diagnostic aids involving extensive use of costly, sophisticated bio-medical equipment. Effective mechanisms should be established to identify essential equipments required for extensive use and to promote and enlarge their indigenous

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manufacture, for such devices being readily available, at reasonable prices, for use at the health care centres.

Health Insurance

16. Besides mobilising the community resources, through its active participation in the implementation and management of national health and related programmes, it would be necessary to device well considered health insurance schemes, on a Statewise basis, for mobilising additional resources for health promotion and ensuring that the community shares the cost of the services, in keeping with its paying capacity.

Health Legislation

17. It is necessary to urgently review all existing legislation and work towards a unified, comprehensive legislation in the health field, enforceable all over the country.

Medical Research

18. The frontiers of the medical sciences are expanding at a phenomenal pace. To maintain the country's lead in this field as well as to ensure self-sufficiency and generation of the requisite competence in the future, it is necessary to have an organised programme for the building up and extension of fundamental and basic research in the field of bio-medical and allied sciences. Priority attention would require to be devoted to the resolution of problems relating to the containment and eradication of the existing, widely prevalent diseases as well as to deal with emerging health problems. The basic objective of medical research and the ultimate test of its utility would involve the translation of available know-how into simple, low-cost, easily applicable appropriate technologies, devices and interventions suiting local conditions, thus placing the latest technological achievements, within the reach of health personnel, and to the front line health workers, in the remotest corners of the country. Therefore, besides devotion to basic, fundamental research, high priority should be accorded to applied, operational research including action research for continuously improving the cost effective delivery of health services. Priorities would require to be identified and laid down in collaboration with social scientists planners and decision makers and the public. Basic research efforts should devote high priority to the discovery and development of more effective treatment and preventive procedures in regard to communicable and tropical diseases—Blindness, Leprosy, T.B., etc. Very high priority would also have to be devoted to contraception research, to urgently improve the effectiveness and acceptability of existing methods as well as to discover more effective and acceptable devices. Equally high attention would require to be devoted to nutrition research, to improve the health status of the community. The overall effort should aim at the balanced development of basic clinical and problem-oriented operational research.

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Inter-sectoral Cooperation

19. All health and human development must ultimately constitute an integral component of the overall socio-economic developmental process in the country. It is thus of vital importance to ensure effective coordination between the health and its more intimately related sectors. It is, therefore, necessary to set up standing mechanisms at the Centre and in the States, for securing inter-sectoral coordination of the various efforts in the fields of health and family planning, medical education and research, drugs and pharmaceuticals, agriculture and food, water supply and drainage, housing, education and social welfare and rural development. The coordination and review committees, to be set up, should review progress, resolve bottlenecks and bring about such shifts in the contents and priorities of programmes as may appear necessary, to achieve the overall objectives. At the community level, it would be desirable to devise arrangements for health and all other developmental activities being coordinated under an integrated programme of rural development.

Monitoring and Review of Progress

20. It would be of crucial importance to monitor and periodically review, the success of the efforts made and the results achieved. For this purpose, it is necessary to urgently identify the base line situation and to evolve a phased programme for the achievement of short and long term objectives in the various sectors of activity. Towards this end, the current level of achievement as well as the broad indicators for the achievement of certain basic health and family welfare goals are set out in the annexed tabular statement. These goals, as well as other allied objectives, would require to be further worked upon and specific targets for achievement established by the Central and the State governments in regard to the various areas of functioning.

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Goals for Health and Family Welfare Programmes

Sl. No.	Indicator		Current Level (1983)	Goals			1985 Achievements
				1985	1990	2000	
1.	Infant mortality rate	Rural	136 (1978)	122			107
		Urban	70 (1978)	60			59
		Total	125 (1978)	106	87	below 60	97
	Perinatal mortality		67 (1976)			30-35	54 (1984)
2.	Crude death rate	Around	14	12	10.4	9.0	11.8
3.	Pre-school child (1–5 yrs.) mortality		24 (1976-77)	20-24	15-20	10	
4.	Maternal mortality rate		4.5 (1976)	3.4	2.3	below 2	
5.	Life expectancy at birth (yrs.)	Male	52.6 (1976-81)	55.1	57.6	64	55.6 (1981-86)
		Female	51.6 (1976-81)	54.3	57.1	64	56.4 (1981-86)
6.	Babies with birth weight below 2500 g (percentage)		30	25	18	10	
7.	Crude birth rate	Around	35	31	27.0	21.0	32.4
8.	Effective couple protection (percentage)		23.6 (March 82)	37.0	42.0	60.0	37.5 (March 1987)
9.	Net Reproduction Rate (NRR)		1.48 (1981)	1.34	1.17	1.00	
10.	Growth rate (annual)		2.24 (1971-81)	1.90	1.66	1.20	
11.	Family size		4.4 (1975)	3.8		2.3	
12.	Pregnant mothers receiving ante-natal care (%)		40-50	50-60	60-75	100	
13.	Deliveries by trained birth attendants (%)		30-35	50	80	100	
14.	Immunisations status (% coverage) TT (for pregnant women)		20	60	100	100	

(Contd.)

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Goals for Health and Family Welfare Programmes (Contd.)

Sl. No.	*Indicator*	*Current level (1983)*	*Goals*			*1985 Achievements*
			1985	*1990*	*2000*	
	TT (for school children)					
	10 years		40	100	100	
	16 years	20	60	100	100	
	DPT (children below 3 years)	25	70	85	85	
	Polio (infants)	5	50	70	85	
	BCG (infants)	65	70	80	85	
	DT (new school entrants 5-6 years)	20	80	85	85	
	Typhoid (new school entrants 5-6 years)	2	70	85	85	
15.	Leprosy—percentage of disease—arrested cases out of those detected	20	40	60	80	
16.	TB—percentage of disease—arrested cases out of those detected	50	60	75	90	
17.	Blindness—Incidence (%)	1.4	1	0.7	0.3	

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8

NATIONAL INDUSTRIAL POLICY

INTRODUCTION

The striking feature of modern civilization is industrialisation. What the previous thousands of years of human history had achieved has been far surpassed by the gains made by the industrial culture of a couple of centuries. Today those countries which were the pioneers in the process of industrialisation are foremost among the nations insofar as winning the struggle for a higher standard of life for their peoples is concerned. It has now become almost axiomatic that a nation must industrialise or perish.

India too had a well developed industrial set up, "modern" as per the standards of the time, when the European traders came here a few centuries ago. It is an irony of fate that at the hands of the colonialists India's wealth as well as industry all but vanished and the Indians began to look to the outside world in awe and wonder at their increasing wealth and ever-growing industrial progress. The national leaders who fought for the freedom of the country from foreign rule and exploitation had a tremendous task before them. Getting the foreigners out of the country was only a beginning of the gigantic task. If the teeming millions of India were to be assured of a life worth living, a lot had to be done on the positive side. Poverty and ignorance had to be eradicated and firm foundations of rapid progress, to catch up with the two centuries of lost time, had to be laid, assuring the dignity of the individual citizens and ensuring, too, that the nation never again would become dominated by any foreign power. The state and the enterprising citizen both had important roles in transforming the subsistence, agrarian, economy to an industrial giant, capable of fulfilling the present and emerging needs of the second largest nation on earth. Indeed, long before the country became free, the Indian National Congress and its leaders had decided on a planned way of progress with stress on industrialisation. Even before a Constitution was adopted for the country, an industrial policy for the nation had been hammered out and implemented. The Industrial Policy Resolution of 1948 was the first formal, official, pronouncement of the government in this regard.

INDUSTRIAL POLICY RESOLUTION, 1948

The aim of the 1948 Industrial Policy was that the "State must play a progressively active role in the development of industries". It also conceded that the mechanism and the resources of the state may not permit it to function

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forthwith in industry as widely as may be desirable. Hence the decision to have complete state monopoly only on three industries, namely, arms and ammunition, atomic energy and railway transport. Also any future ventures in six other industries were to be the exclusive monopoly of the State. These were coal, iron and steel, aircraft manufacture, ship building, manufacture of telephones, telegraph and wireless apparatus, excluding radio receiving sets and mineral oil. The result of this policy was the acceptance of mixed economy as a model for development of the country. It allowed the establishment of industries in the private sector in a wide field. Gradually, however, more stress was laid by the Government on the attainment of a socialistic pattern of society. A Resolution adopted by the Lok Sabha in December 1954 declared that the object of the country's economic policy should be the socialistic pattern of society. Speaking on the Resolution, Prime Minister Nehru said that "progressively as the socialist pattern grows, there is bound to be more and more nationalised industry—but what is important is not that there should be an attempt to nationalise everything, but the results of that. That is, what you are aiming at is production and employment. If by taking any step you actually stop the production process from growing, this does not lead you to that socialistic pattern, although that little step might be called socialistic." It is this pragmatic thinking that has informed the government's industrial policy throughout the post-independence period.

INDUSTRIAL POLICY RESOLUTION OF 1956

The intervening years from 1948 when the first Industrial Policy Resolution was adopted and 1956 when the policy was restated, certain momentous developments had taken place in the country. The Constitution of India guaranteeing certain Fundamental Rights and enunciating the Directive Principles of State Policy had been enacted. Planning had proceeded on an organised basis, and the First Plan was successfully completed. A socialistic pattern of society was accepted as the objective of social and economic policy. Whereas the Preamble to Constitution said *inter alia,* about securing social and economic justice, the Directive Principles had called upon the State (i) to secure to all citizens an adequate means of livelihood, (ii) to ensure that the ownership and control of material resources of the community are so distributed as best to subserve the common good, and (iii) to ensure that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment.

In this context it was but natural that the industrial policy of the Government should undergo some changes in its thrust and direction. The basic and general principles in this regard were given a precise direction when Parliament accepted, in December 1954, the socialistic pattern of society as the objective of social and economic policy.

The Industrial Policy Resolution of 1956 laid stress on accelerating the speed

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of industrialisation, in particular heavy industries, expansion of public sector and the growth of the cooperative sector. The State was to progressively assume a predominant and direct responsibility for setting up new industrial undertakings and for developing transport facilities. State trading was another important area stressed by the Policy Resolution. Industries of basic and strategic importance and those in the nature of public utility services were to be in the public sector. Those industries which required huge investment, which only the State could mobilize, also had to be in the public sector.

Taking into account all aspects of the problem, industries had been classified into three categories, though a certain element of overlapping amongst them was natural and unavoidable. In the first category were industries the future development of which would be the exclusive responsibility of the State. The second category consisted of industries which would progressively be State-owned and in which the State would, therefore, generally take the initiative in establishing new industries, but in which private enterprise would also be expected to supplement the effort of the State. The third category included all the remaining industries and their future development was, in general, to be left to the initiative and enterprise of the private sector. However, it was always open to the State to undertake any type of industrial production.

In the first category (Schedule A industries) were included Railways and Air transport, arms and ammunition and atomic energy which were to be the exclusive monopoly of the State. In respect of other industries in this Schedule Cooperation of the private sector could be sought by the State in setting up industries when the national interests so decided.

The second category of industries (included in Schedule B of the Resolution) included, among others, machine tools, antibiotics and other essential drugs, fertilizers, synthetic rubber, and road and sea transport. With a view to accelerating their future development, the State was increasingly to establish new undertakings in these industries. At the same time private enterprise also was given the opportunity to develop in this field either on its own or with State participation.

In regard to the other industries, which were not listed in either of the schedules, private enterprise was given a free hand, it was the policy of the State to facilitate and encourage the development of these industries in the private sector, in accordance with the programmes formulated in successive Five-Year Plans, by ensuring the development of transport, power and other services and by appropriate fiscal and other measures including fostering institutions providing financial assistance to industries.

It was the policy of the Government that the industrial undertakings must fit into the framework of the social and economic policy of the State and would be subject to controls and regulations under the relevant legislation. They would be allowed as much freedom as possible consistent with targets and objectives of the national plan. When there were both privately and publicly owned units of the same industry, the policy was to give fair and non-discriminatory treatment to both categories.

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An element of overlapping between the different categories had always been recognised. A water-tight compartmentalisation was neither envisaged nor desirable. In fact, there was often the need for a dovetailing of the public and private sectors. Again the relationship between large and small industries was not to be one of hostility but of complementarity.

The development of cottage, village and small industries was stressed by the Industrial Policy Resolution. Some of the methods to be adopted for this purpose were restricting the volume of production in the large-scale sector, differential taxation, direct subsidies, etc. The establishment of industrial estates, community workshops, and constant upgradation of techniques of production were envisaged to achieve the competitiveness of the small sector *vis-a-vis* the large scale sector.

Dispersal of industries, thus thwarting unplanned and uncontrolled urbanisation, development of proper managerial and technical cadres, etc. were also stressed in the Policy. Maintenance of industrial peace and the realisation that in a socialist democracy, labour was a partner in the common task of development, demanded that there should be a machinery for joint consultation. The participation of workers and technicians in management, where possible, was encouraged. With the growing role of the State in industry there was also to be a decentralisation of authority. The Industrial Policy Statement promised steps in the right direction in this regard too.[1] (For text of the Industrial Policy Resolution 1956, please see Appendix 8.1.)

INDUSTRIAL POLICY DURING 1977–79

The industrial policy of the Government did not undergo any basic change during 1977–79. The Industrial Policy Resolution of 1956 continued to govern the Government's policy for achieving the objectives of growth, social justice and self-reliance in the industrial sphere. In the statement of Industrial Policy announced on December 23, 1977 the Government emphasized the interaction between the agricultural and industrial sector, the need for strengthening the small scale industries and the tiny sector, the need for reliance on appropriate technology, dispersal of industries, the need for maximising employment, etc.

INDUSTRIAL POLICY STATEMENT OF 1980

The industrial policy of the Government of India was restated by Shri Charanjit Chanana, Minister of State for Industry in July, 1980.[2] The announcement emphasized the commitment of the Government to rapid and balanced

[1] Industrial Policy Resolution, 30.4.56.
[2] For text of the policy statement please see Appendix 8.2.

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industrialisation of the country with a view to benefiting the common man in the shape of increasing availability of goods at fair prices, larger employment and higher per capita income. A dynamic industrial economy capable of distributing the benefits of industrialisation to the maximum number of people was envisaged. The socio-economic objectives of the new policy were:

- Optimum utilisation of the installed capacity;
- Maximising production and achieving higher productivity;
- Higher employment generation;
- Correction of regional imbalances through a preferential treatment to agro-based industries, and promoting optimum inter-sectoral relationship;
- Faster promotion of export-oriented and import substation industries;
- Promoting economic federalism with an equitable spread of investment and the dispersal of returns amongst widely spread-over small but growing units in rural as well as urban areas; and
- Consumer protection against high prices and bad quality.

For the attainment of these objectives a rehabilitation of faith in public sector was considered essential. The development of managerial cadres in functional fields such as operations, finance, marketing and information system was sought to be achieved rapidly.

It was at the same time conceded that the private sector would continue to play a vital role in pursuing the goal of a vibrant, self-reliant and modern economy.

The artificial differences created between small and large scale industries were to be abolished. In order to achieve an integrated industrial development it was proposed to promote the concept of economic federalism with the setting up of a few nucleus plants in each district, identified as industrially backward, to generate as many ancillaries and small and cottage units as possible.

The proposed nucleus plants in industrially backward districts were to generate a spread-out network of small scale units. Also, the existing network of small scale units in an area was to acquire a faster growth by the coming of a nucleus plant in the area. Such a two-way traffic was to create an ancillarisation effect in terms of larger employment, more equitable distribution of the benefits of such an industrialisation in the shape of higher per capita income for the larger number of people in the area.

Financial support to small units, building up of buffer stocks for critical inputs, marketing support and reservation of items for small scale industries, correcting regional imbalances by a planned and government-aided dispersal of industries, and periodic evaluations of the various incentives were some of the other important aspects of the new policy.

Generation of additional employment and increase in production and productivity were essential for solving the country's problems. Accordingly, it had been decided to recognise additional capacities achieved as a result of replacement and modernisation of equipment, over and above the originally endorsed

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capacities. Again, stress was laid to the adoption of advanced technology, allocation of substantial resources for research and development, a dovetailing of industrial and energy, pollution control and environmental improvement.

Industrial sickness has for some time been a growing problem. The policy statement laid stress on devising an early warning system for identifying symptoms of sickness. In the case of existing sick units, voluntary mergers with healthy units were to be encouraged. Government take-overs were intended to be restored to only in exceptional cases.

Improvement of industrial relations through constructive and cordial industrial climate and revival of tripartite labour Conference, was emphasised in the new policy.

IMPLEMENTATION OF THE INDUSTRIAL POLICY

The industrial policy of the Government is implemented through the Industries (Development and Regulation) Act, 1951. This Act has set up the administrative institutions for coordinating the energies of the private and public sector, with a view to utilising the limited local and foreign exchange resources of the country for maximum industrialisation. The industries which are subject to Central Government regulation have been listed in the First Schedule. This is amended from time to time through legislative amendments. Thus, the Industries (Development and Regulation) Act is the major device in the hands of the Government for implementing and articulating the industrial policy. The general scheme of the Act is regulation of the scheduled industries through (i) the registration of the existing industrial undertakings, (ii) the licensing for the establishment of new undertakings, and expansion of the licensed undertakings, (iii) investigations into the operation of the private industrial undertakings in certain specified circumstances with a view to ensuring their working in conformity with the policy and standards laid down under the Act, (iv) the power of the Central Government to issue directions to private industries, (v) the assumption of management and control of the industries by the Government under certain circumstances, and (vi) the control of supply, distribution and prices of the production of such industries. The Government determines the pattern of industrial development and expansion with the help of these powers. Government regulation is also exercised through licensing and registration of the private undertakings and through administrative supervision of the private industrial undertakings with a view to ensuring their compliance with the terms and conditions of the licence. The planning of future industrial development on sound lines is also sought to be secured through licensing of industrial expansion. It is through licensing that the Government exercises control over the location, expansion and setting up of private industrial undertakings with a view to channelising investments into the desired direction, promoting balanced regional development, protecting small scale and cottage industries and preventing concentration of economic power in a few hands.

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For licensing purposes, the Industries (Development and Regulation) Act, 1951 requires the owner of every existing industrial undertaking to register his firm within such period as the Central Government may, by notification in the Official Gazette, fix in this behalf with respect to industrial undertakings generally or with respect to any class of them. Upon such registration the owner of the undertaking is given a certificate of registration containing such operations and capacities as may be prescribed. The Act forbids the establishment of a new industrial undertaking by any person or authority other than the Central Government, except in accordance with a licence issued in that behalf by the Central Government. The owner of an industrial undertaking which is registered or in respect of which a licence or permission has been issued shall not produce or manufacture any new article without obtaining a licence for producing and manufacturing such new article or getting his existing licence amended so as to have authorisation for producing or manufacturing such new article. Similarly the owner of the industrial undertaking which has already been authorised under the Act shall not effect any substantial expansion of the industrial undertaking except under and in accordance with a licence issued in that behalf by the Central Government.[1]

Objectives of Licensing

The system of licensing which is an essential part of the industrial policy of the Government is aimed at securing the following:

(a) Optimal utilisation of investible resources; and
(b) Allocation of investible resources with a view to:

(i) meeting need-based requirements of industries in accordance with national priorities;
(ii) preventing concentration of economic power;
(iii) securing balanced development of various parts of the country;
(iv) securing the widest possible dispersal of entrepreneurship and distribution of income;
(v) stimulating employment with particular accent on absorption of agricultural surplus as well as discouragement of urban migration;
(vi) locating nucleus of economic activity in a dispersed manner so as to achieve widening of the industries base; and
(vii) achieving optimal inter-sectoral balance between public sector, organised private sector and small scale sector.

Licensing Policy

Industrial Policy Resolution of 1956 continues to provide the basic framework of the overall industrial policy of the Government. Over the past 30 years, adjustments have been made in this policy to meet the changing needs of the

[1] Nafees Baig: *Government Controls and Industrial Expansion in India*. Aligarh, Printwell Publications, 1983, pp. 46–49.

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economy. The main thrust of this policy has been to enhance and upgrade the efficiency and competitiveness of Indian industry. The intention of the policy is to promote international competition in the first instance and to expose our industry to external competition after it acquires sufficient strength to withstand it. A number of unnecessary or unproductive regulatory controls have been removed in the recent past in order to bring about a competitive situation in the domestic market. The liberalisation measures introduced over the period of years have been directed towards the ultimate objective of making the Indian industry more competitive, productive and cost efficient. It has to be recognised that it is essentially through healthy competition and efficient production that it would be possible to ensure goods of quality at reasonable price to our consumers. The important policy initiatives taken during the last few years are briefly summarised below.[4]

Broad Banding of Industries for the Purpose of Licensing

With a view to optimising utilisation of capacity and encouraging large volumes of production so as to secure the benefits of economies of scale and streamlining the licensing procedures and with a view to providing flexibility to the manufacturers to adjust their product-mix depending upon the market demand, a scheme of broad banding was introduced in 1984 and was extended during the subsequent years. It now covers 35 industries. A list of these 35 industries is given at Appendix 8.3. As a result of this facility, the industrial undertakings are now free to apply for manufacture of broad categories of items/products instead of applying for the manufacture of individual items/products. The facility is also available to the existing licensed industrial undertakings and in considering their applications, a simplified procedure is followed.

Delicensing of Industries

30 broad categories of industries stand delicensed now for non-MRTP/non-FERA companies provided the item of manufacture is not reserved for small scale sector and the industrial undertaking is not located:

(a) within the standard urban limits as determined in the Census of India, 1981 of a city having a population of more than 10 lakhs; or
(b) within the municipal limits of a city with a population of more than 5 lakh, as determined in the said Census.

An up-to-date list of the items delicensed for non-MRTP/non-FERA companies is given in Appendix 8.4.

Delicensing of Industries for MRTP/FERA Companies

The scheme of delicensing was extended in March 1986 to MRTP/FERA companies in respect of 20 industries in Appendix 8.1 list of industries for

[4] Information received from the Ministry of Industrial Development.

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locations in centrally declared backward areas. During the year 1987–88 this was further extended to 27 more Appendix 8.1 industries for locations in centrally declared backward areas and to 24 non-Appendix 8.1 industries for locations in Category 'A' districts. In order to ensure that these industries are not set up near the vicinity of large cities, it has been stipulated that the delicensing facility will apply only if the undertakings are located beyond a radius of 100 km from cities having a population of over 25 lakh according to 1981 Census, namely, Ahmedabad, Bangalore, Bombay, Calcutta, Delhi, Hyderabad and Madras. A list of such industries which are delicensed for MRTP/FERA companies is attached at Appendix 8.5.

Re-endorsement of Capacity

With a view to encouraging further utilisation of capacity and maximisation of production, a liberalised scheme of re-endorsement of licensed capacity was introduced in January 1988. According to this scheme, an industrial undertaking which achieves 80 per cent of its licensed capacity can have its capacity re-endorsed for the highest production achieved by it during any of the previous 5 years *plus* one-third thereof. If the undertakings achieve a production of at least 80 per cent of the capacity so endorsed, it could avail of the benefit of the scheme again during the Seventh Plan period.

Re-endorsement of Capacity with Reference to Minimum Economic Scales of Operation

With a view to encouraging expansion of capacity in existing industrial undertakings to achieve the suggested minimum economic scales of operation, a scheme of re-endorsement of capacity in respect of 73 selected industries have been introduced. A fast track approach is being adopted for disposal of applications received under this scheme. A list of industries where the scheme is in operation is attached at Appendix 8.6.

Modernisation/Replacement and Renovation of Equipments

In order to ensure speedy decisions on specific proposals for modernisation/replacement or renovation of equipments, it was decided by Government to follow a simplified procedure in cases where modernisation/replacement or renovation result in increase of capacity upto 49 per cent of the licensed capacity, the locational constraints will not apply in such cases and this facility is available to all companies including MRTP/FERA companies. The undertakings concerned can add equipments to their existing plant and machinery so as to achieve the increase in capacity upto the prescribed limit of 49 per cent of the licensed capacity.

Scheme for Export Promotion

With a view to encouraging export production, Government had decided in 1981 to exempt industrial undertakings from obtaining licences for production

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in excess of the licensed capacity if such additional production is entirely for exports subject to the condition that the item of manufacture should not be reserved for the small scale sector and that there is no addition to the investment in plant and machinery. There were, however, no locational constraints. The restrictive conditions mentioned above were withdrawn to facilitate growth of export production.

In order to enable industrial undertakings to respond quickly to export orders and as part of Government's policy of liberalisation of licensing procedures for promotion of exports, Government had decided that undertakings who have firm export orders will be exempted from the requirement of obtaining an industrial licence for fulfilling a one-time export order. Administrative Ministries after satisfying themselves that the party holds a firm order for exports may permit the parties concerned to take up manufacture of the item concerned without having to obtain an industrial licence provided this is a one-time operation and the entire production covered by such permission is exported. It is not necessary for the industrial undertakings to approach the Secretariat for Industrial Approvals (SIA) for issuing such permission letters.

To enable undertakings including FERA/MRTP companies in the pharmaceutical sector to maximise their production particularly for exports, the need for obtaining a specific permission/industrial licence for such production has been dispensed with. The facility would be available provided there is no additional investment on plant and machinery and that such production results in a minimum value addition of not less than 20 per cent when imported raw materials/inter-mediaries are used. This facility will be available only against firm export orders and the entire production will be exported.

Revision of Appendix I Industries

In 1973 a list of industries was announced wherein large industrial undertakings and companies covered by the MRTP Act and FERA were allowed to participate along with other companies. This list was reviewed and modified in April 1982. A further review of this list was undertaken and the list has been revised and enlarged by inclusion of a number of new industries. 31 industries are currently in the list.

Delegation of Powers

As part of the streamlining of approval procedure, a number of areas where powers could be delegated to subordinate levels were identified. In the following areas powers have been delegated to Directors/Deputy Secretaries for according approvals:

(a) Letters of intent are being revalidated for two extensions of one year each by the Administrative Ministries. Powers have been delegated in these cases to the Deputy Secretaries/Directors in the Administrative Ministries.

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(b) In the case of extension of foreign collaboration approvals, powers have been delegated to Deputy Secretaries/Directors in the Administrative Ministries.

Policy on Sugar Industry

Following a review of the guidelines for licensing new units and expansion of existing sugar factories, fresh guidelines were issued in January 1987. According to these guidelines, the policy followed during the Sixth Five-Year Plan period, namely, grant of licences for the establishment of new sugar factories in the Cooperative Sector followed by the Public Sector will continue in the Seventh Five-Year Plan. However, in areas where proposals from these two sectors are not received, the proposals from the private sector would be considered. Adequate availability of sugarcane in a compact area around the proposed factory site and proper zoning of sugar areas for each existing sugar factory are to be ensured by the State Governments before recommending requests for expanding the capacity of any existing factory or installation of a new factory. Other aspects of sugar policy are a ban on establishment of new sugar factories within a radius of 40 km of an existing unit, grant of initial capacity of 2500 Tonnes Crushing Per Day (TCD) and expansion of existing units upto 3500/ 5000 TCD and priority to set up new sugar factories in backward areas subject to availability of sugarcane and techno-economic viability.

New Guidelines for Licensing of Industrial Units for Manufacture of Milk Products/Malted Foods

The Government has reviewed the policy of licensing of units for manufacture of milk products and malted foods and decided that priority for establishing further capacity for manufacture of these products should be accorded to the cooperative and public sector and accordingly formulated revised guidelines for licensing such units. In the areas covered by Operation Flood, no applications for setting up of new units in private sector will be entertained. Applications for expansion in capacity will be based on the availability of milk subject to a maximum of 5 per cent increase per year over the existing licensed capacity from the year in which the existing capacity was licensed. In areas outside Operation Flood, preference will be given to applications from cooperatives or public sector units, but in case no suitable applications from either of these sectors is pending, applications from private sector units may be considered on fulfilment of certain conditions specified. Under this policy, broadbanding in milk products was allowed for all items of milk products which would be grouped together as follows:

All milk products except infant milk food (Baby Food).

Guidelines for Licensing in Steel Industry

New guidelines for industrial licensing in steel capacity were announced in February 1988. These guidelines *inter alia* provide for expansion in the existing

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steel making capacity upto 150 per cent subject to a maximum of 2,50,000 tonnes per annum by modernisation and replacement of the equipment. Other highlights of the guidelines include permission to set up facilities for manufacture of H.R. Steel Strips/Coils of wider width, increase in capacity of existing cold rolled strips units upto 50,000 tonnes per annum through modernisation/ renovation, recognition of minimum economic capacity of 50,000 tonnes per annum in respect of minis steel plants, diversification of existing units producing C.R. Strips/Coils/Sheets into all grades of carbon and alloy steels, delicensing of wire rod industry in respect of non-MRTP/FERA companies, broadbanding of GP/GC sheets industry permitting them to take up manufacture of coated sheets and diversification of Ferro manganese producers to make other grades of Ferro alloys.

Scheme of Maximisation of Industrial Production—Re-endorsement of Capacity

According to the scheme of re-endorsement of capacity announced on March 30, 1988, the maximum production achieved by an industrial undertaking in any financial year between April 1, 1988 and March 31, 1990 would automatically be endorsed on its licence or registration certificate. No restrictions apply to such re-endorsement except that the item should not be reserved for small scale sector or it should not be a Schedule IV/Schedule V industry. This gives a very good opportunity to existing industrial undertakings to put their installed capacity to the utmost use and get their best production in the next two years recognised on their industrial licence/registration. The scheme is available to all companies including MRTP/FERA companies and for all items regardless of whether they are Appendix 8.1 or non-Appendix 8.1 items. Locational restrictions also do not apply to this scheme.

MEASURES FOR DISPERSAL OF INDUSTRIES

An important objective of government's policy as also of industrial licensing is to correct regional imbalances and secure the industrialisation of backward areas. Though the State Governments are primarily responsible for providing infrastructural facilities for promotion of industrial activity, the Central Government supplements their efforts in the development of backward areas. To achieve this objective, the Central Government is operating three major schemes, viz. Central Investment Subsidy Scheme, Transport Subsidy Scheme and Central Assistance for Infrastructural Development in No-industry Districts.[5]

Central Investment Subsidy Scheme

This scheme introduced in 1971 and modified from time to time is meant to encourage entrepreneurs to set up industries in backward areas.

[5] Government of India, Department of Industrial Development, *Annual Report*, 1987–88, p. 14.

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The backward areas have been categorised as under:

(i) Category A—No-industry Districts plus special regions.
(ii) Category B—Districts earlier eligible for Central Investment Subsidy minus districts included in Category A.
(iii) Category C—Districts earlier eligible for concessional finance minus districts included in Categories A and B.

The Central Investment Subsidy in Category A District will be 25 per cent subject to a maximum of Rs. 25 lakh (enhanced to Rs. 50 lakh for setting up electronics industry in hill districts). In Category B and C districts it will be 15 per cent subject to a maximum of Rs. 15 lakh and 10 per cent subject to a maximum of Rs. 10 lakh, respectively.

Entrepreneurs who set up nuclear plants in Category B and C districts/areas are eligible for 20 per cent and 15 per cent Central subsidy subject to a maximum of Rs. 20 lakh and 15 lakh respectively. Since the inception of the scheme and upto December 1987, a total sum of Rs. 603.16 crore has been disbursed to States/UTs excluding Delhi and Chandigarh.[6]

Transport Subsidy Scheme

This scheme is applicable to hilly, remote and inaccessible areas. The entire North Eastern Region, including Sikkim, Jammu & Kashmir, Himachal Pradesh, hill districts of Uttar Pradesh, Lakshadweep and Andaman and Nicobar Islands and Darjeeling district of West Bengal are covered under the Scheme. Identified promotional institutions which transact business on behalf of small village and cottage industries are also eligible for transport subsidy. In the North-Eastern region including Sikkim, Jammu and Kashmir, Lakshadweep, Andaman and Nicobar Islands, it is available at the rate of 90 per cent of the transport costs of industrial raw material which are brought into and finished goods which are taken out of the selected areas between the location of new/existing areas and identified rail heads/ports. It is also available on the movement of raw materials only within the North-Eastern region. For air-lifting of electronic components/ products from Calcutta airport to the airport nearest to the location of industrial unit it is allowed at the rate of 75 per cent and vice-versa. For Himachal Pradesh, hill districts of Uttar Pradesh, and Darjeeling district of West Bengal it is available at the rate of 75 per cent. Since the inception of the Scheme in 1971 and upto December, 1987 a sum of Rs. 19.71 crore has been reimbursed.

Infrastructural Development Assistance

One of the most important impediments in the industrialisation of the backward regions, more particularly the No-Industry Districts, is the absence of infrastructural facilities. In this context a scheme has been drawn up for assisting the State Governments to take up infrastructural development in one

[6] *Ibid.*

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or more identified growth centres in each No-Industry District. The assistance from the Central Government will be limited to 1/3rd of the total cost of infrastructural development, subject to a maximum of Rs. 2 crore per district. Two types of patterns can be followed by the State Governments as indicated below:

Pattern I

Rs. 2 crore as subsidy from the Central Government.
Rs. 2 crore as the share of the State Government.
Rs. 2 crore as loan from IDBI on concessional terms.

Pattern II

Rs. 2 crore as subsidy from the Central Government.
Rs. 4 crore as the share of the State Government.
Rs. 5 crore as loan from IDBI on concessional terms after the share of State and Centre are spent.

For the States in the North-Eastern Region the scheme has been further liberalised. In a total project of Rs. 4 crore the Central Government's share would be 50 per cent, i.e. Rs. 2 crore per district and the State Government have the option to find the balance of Rs. 2 crore either from their own funds or by raising loan from IDBI. Construction of sheds, subject to a ceiling of 25 per cent of the total cost has been allowed in the case of the North-Eastern region only.

Almost all the States/Union Territories have constituted State Level Committees which consider proposals to suggest growth centres. So far 51 growth centres, identified by the State Governments of Arunachal Pradesh, Bihar, Karnataka, Maharashtra, Madhya Pradesh, Mizoram, Nagaland, Orissa, Rajasthan, Tripura, Uttar Pradesh and West Bengal for development of infrastructure have been approved by the Ministry of Industrial Development. Some of the State Governments have submitted feasibility reports to IDBI for its approval. A sum of Rs. 11.42 crore has been released to State Governments of Rajasthan, Orissa, Uttar Pradesh, Karnataka, Madhya Pradesh, Maharashtra and Mizoram from one to three instalments of Central assistance till December, 1987.

FOREIGN COLLABORATION

Government's Policy for Foreign Collaboration is selective and based on national priorities. Foreign Collaboration is permitted in sophisticated and high priority areas, in export-oriented or import substitution manufacturing or for enabling indigenous industry to update existing technology in India to meet efficiently domestic requirements and or to become competitive in the export market. It is recognised that with constant technological advancement in the

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developed countries, the need to update our own production technology to match the best in the world is a *sine qua non* for remaining competitive in the world market.

Streamlining of Procedures

In order to streamline and expedite the procedure for processing of foreign collaboration proposals, the Government have delegated powers to the Administrative Ministries to accord approvals for foreign collaboration proposals in the types of cases mentioned below:

(i) No foreign equity participation is involved in the proposal.
(ii) The applicant is not a company with existing foreign equity investment.
(iii) The item proposed to be manufactured is consistent with the priorities set out in the industrial policy statement.
(iv) The proposal is not one envisaging extension of the period of collaboration approved earlier.
(v) The royalty payable is not more than 5 per cent (taxable) and will be comprised within the period of agreement which may extend to 10 years. The period of going into commercial production is included within this period of 10 years. The total lumpsum and royalty payment should not be more than 8 per cent of the total expected sales (calculated on ex-factory value basis) over a period not exceeding 10 years. The above are treated as upper ceilings and the period of the agreement in respect of individual cases are decided by the Administrative Ministries on a case to case basis, taking into account all relevant factors. It is desirable that normally the period of agreement should be for 8 years for commencement of commercial production.
(vi) Lumpsum payments, if any are paid in three standard instalments. If the Indian party so desires, the lumpsum amount sanctioned could be net of Indian taxes with taxes being borne by the Indian party.
(vii) The foreign exchange outgo in each case on lumpsum payments, if any, royalty together does not exceed Rupees one crore in the aggregate.

All applications seeking approval for foreign collaboration are received centrally in the Secretariat for Industrial Approvals (SIA), Foreign Collaboration Section, New Delhi. Applications in respect of proposals which could be disposed of by the Administrative Ministries under the delegated powers are forwarded by the Secretariat for Industrial Approvals to the Administrative Ministries. Proposals not within the ambit of the above delegations will be processed by the Secretariat for Industrial Approvals and submitted to the Foreign Investment Board for due consideration.

With a view to facilitate computerisation of the information as contained in Foreign Collaboration proposals and to help expeditious disposal of such cases the form for foreign collaboration application has been revised with effect from July 1, 1983.

An illustrative list of industries where no foreign collaboration, financial or

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technical, is considered necessary for the present has also been prepared. The import of technology may be considered by Government even in these fields if the proposals conform to the guidelines referred to in the Statement of Industrial Policy.

The duration of the agreement shall be for a period of five years from the date the agreement is filed with the Reserve Bank of India or five years from the date of commencement of commercial production provided production is not delayed beyond three years of the date the agreement is filed with the Reserve Bank of India (i.e. a maximum period of eight years from the date the agreement is filed with the Reserve Bank of India).

The following are some of the important guidelines for approval of proposals for foreign collaboration (financial and/or technical).

(a) Equity Participation

Government's policy towards permitting foreign equity participation will continue to be selective. Such participation has to be justified having regard to factors such as the priority of the industry, the nature of the technology involved, whether it will promote exports and the alternative terms available for securing the same or similar technological transfer. The ceiling for foreign equity participation is 40 per cent although exceptions can be considered on merits.

The foreign share capital should be by way of cash without being linked to tied imports of machinery and equipment or to payments for know-how, trade marks, brand names, etc.

Keeping in view the need to provide additional facilities to promote investment in the country from Oil Exporting Developing Countries, which have large financial resources but not the type of technology that the country needs, it has been decided that foreign investment proposals from these countries need not be associated with transfer of technology from the equity holder and that such investments may be of portfolio nature. Within the framework of the investment policy of the Government it has been decided to provide the following facilities.

(a) Investment from oil exporting developing countries may be permitted in new companies even if it is in the nature of portfolio investment.
(b) Such investments should not exceed 40 per cent in the equity.
(c) The new companies should be export-oriented or should undertake manufacturing activities covered under Appendix I of the Industrial Policy of 1973, as redefined *vide* Press Note No. 35 (1985 Series) dated December 31, 1985.
(d) Investment on the aforesaid pattern may be allowed in hotels.
(e) Investment may also be allowed in new hospital projects and such hospitals should have adequate provision for outdoor and emergency medical service to the general public and also for a minimum percentage of occupancy by Indian public.
(f) Loans should also be allowed to be raised abroad for such joint ventures provided the terms are reasonable.

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(b) Technical Collaboration

Technical collaborations are considered on the basis of annual royalty payments which are linked with the value of actual production. The percentage of royalty will depend on the nature of technology but should not ordinarily exceed 5 per cent. Royalty is calculated on the basis of ex-factory selling price of the product net of excise duties minus the cost of standard bought out components and landed cost of imported components. Royalty payments are subject to Indian taxes. Wherever appropriate payment of a fixed amount of royalty per unit of production will be preferred.

Lumpsum payments may also be considered in appropriate cases for the import of drawings, documentation and other forms of know-how. In deciding on the reasonableness of such payments, account will be taken of the value of production so that the lumpsum and the recurring royalty, if any, is an acceptable proportion of the value of production. Such payments will be subject to applicable Indian taxes. However, where the foreign collaborator insists that the lumpsum amount payable to them should be net of taxes, such payments can also be allowed provided the Indian party agrees to bear the tax liability. The lumpsum payments should be phased out as follows:

1/3rd after the agreement is filed with the RBI and the capital goods clearance, if any, is obtained;
1/3rd to be paid on the transfer of documentation, etc.;,and
1/3rd to be paid at the commencement of production or four years after the agreement is filed (with the RBI), whichever is earlier.

(c) Renewal of Collaboration Agreement

Applications for extension of collaboration agreements are scrutinised carefully and extensions are agreed to only in those cases where Government is satisfied that there is need for them. Applications for extension may be considered in the following circumstances.

(a) If the item of manufacture is sophisticated and it is necessary that the period of collaboration should be extended for a short period to enable the Indian party to fully absorb the know-how.
(b) If the collaboration agreement involves the manufacture of a large number of items and the Indian party could start manufacturing some of the items only at a later stage. In such cases extension is granted only in respect of those few items the manufacture of which started later.
(c) If it is felt that such extension would be in the interest of exports of the manufactured product.

Even where extensions are considered and granted every effort is made to reduce the rate of royalty payable taking into account the nature of the product and the period of extension.

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(d) Guidelines for Entrepreneurs

The following are the guidelines which the entrepreneurs are required to take note of in negotiating proposal for foreign collaboration so as to ensure that such proposals confirms to the policies of the Government.

(i) They should, to the fullest extent possible, explore alternative sources of technology, evaluate them for a techno-economic point of view and furnish the reasons for preferring the particular technology and the source of imports;

(ii) The Indian party should be free to sub-licence the technical know-how/product design/engineering design under the agreement to another Indian party on terms to be mutually agreed to by all the parties concerned including the foreign collaborator and subject to the approval of the Government;

(iii) The royalty, wherever allowed, will be calculated on the basis of the net ex-factory sale price on the product exclusive of excise duties minus the cost of standard bought out components and the landed cost of the imported components, irrespective of source of procurement, including ocean freight, insurance, custom duties, etc. The payment of royalty will be restricted to annual licensed/registered capacity plus 25 per cent in excess thereof. In case of production in excess of this quantum, prior approval of Government would have to be obtained regarding the terms of payment of royalty in respect of such excess production;

(iv) There should be no requirement for the payment of a minimum guaranteed royalty regardless of the quantum and value of production;

(v) Arrangements or clauses which in any manner bind the Indian party with regard to the procurement of capital goods, components, spares, raw material, pricing policy, selling arrangements, etc. should be avoided;

(vi) To the fullest extent possible, there should be no restrictions on free export to all countries;

(vii) The use of foreign brand names will not be permitted for internal sales;

(viii) The Government do not favour requests for extension to the duration of collaboration agreement. All efforts should, therefore, be made by Indian party to assimilate the technology within the initial duration of the agreement.

(ix) Suitable provision should be made for the training of Indians in the fields of production and management. There should also be adequate arrangements for Research and Development (R and D), engineering design, training of technological personnel and other measures for the absorption, adaptation and development of the imported technology. Such measures can be undertaken through in-house facilities of the entrepreneur in collaboration with recognised engineering design

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consultancy, R and D organisation in the public or private sectors and recognised scientific and educational institutions, where the necessary facilities exist;

(x) Consultancy service required to execute the project should be obtained from Indian consultancy firms. If foreign consultancy is also considered necessary, an Indian consultancy firm should be the prime consultant;

(xi) If the proposed item of manufacture is covered by a patent in India, it should be ensured that the payment of royalty/lumpsum payment for the duration of the agreement would also constitute compensation for the use of patent rights till the expiry of the life of the patent and that the Indian party, would have the freedom to produce the item, even after the expiry of collaboration agreement without any additional payments.

(xii) Collaboration agreement will be subject to Indian laws.

It is the intention of Government to dispose of foreign collaboration applications within 60 days.

Entrepreneurs desirous of setting up an industry with foreign collaboration have first to obtain a letter of intent, if the item of manufacture pertains to a scheduled industry and the undertaking is not exempt from licensing under the current Licensing Policy of the Government. Entrepreneurs may submit composite applications for a letter of intent as well as for foreign collaboration. In such cases, it is the intention of Government to give simultaneous disposal to both applications. Where the proposed investment is exempt from licensing, entrepreneurs can straight away apply for the approval of foreign collaboration.

Assistance to the applicants are provided by the Entrepreneurial Assistance Unit of the Secretariat for Industrial Approvals, Department of Industrial Development. In regard to information and assistance in securing foreign collaboration entrepreneurs can also approach the Indian Investment Centre, which has its headquarters office at New Delhi and overseas office at Abu Dhabi, Frankfurt, London, New York, Singapore and Tokyo.

(e) Taking of Agreements on Record

The approvals given for foreign collaboration are valid for a period of six months from the date of issue. In case the terms of collaboration approved by the Government are acceptable to the Indian party, an intimation in this regard has to be sent by them to the concerned Administrative Ministry. The Indian party can then execute the collaboration agreement with the collaborator which should be strictly in accordance with the terms approved by the Government.

The Government has been conscious that the procedure for making foreign collaboration agreements on record has in some cases led to considerable delays in implementing industrial projects. With a view to encouraging speedier implementation of technology upgradation. Government has abolished the procedure of taking the FC agreements on record.

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(f) Annual Returns

The Indian company should submit an annual return about the progress of the undertaking in a specified form showing the position as on December 31, each year. This return should be submitted by January 31 of the following year, till the date of expiry of foreign collaboration agreement.

To ensure technology absorption and to promote R&D efforts, the Annual Report of the Indian Company would contain a chapter on the absorption of technology. This chapter would also indicate research and development efforts made by the company.

(g) Special Procedure for the Import of Designs and Drawings

The Government has introduced a simplified procedure for the import of designs and drawings by undertakings engaged in manufacturing activities. According to this procedure, import of drawings and designs not exceeding Rs. 30 lakh in value per year is permitted to industrial undertakings. Applications for this purpose have to be submitted in the prescribed form with five spare copies to the Secretariat for Industrial Approvals. Copies of the application will be sent to the DGTD, Administrative Ministry and Department of Economic Affairs. On receipt of the comments Secretariat for Industrial Approvals will issue final orders within a period of one month after obtaining the orders of the Member Secretary, Foreign Investment Board.

Keeping in view the experience, the form for sending the applications for import of designs and drawings has been revised in September 1982.

(h) Standardisation and Quality Control Systems in India in Proposals Relating to Foreign Collaboration

In order to overcome lack of linkage between industrial licensing and product quality and to avoid multiplicity of standards for the same product, it has been decided that the Indian entrepreneurs, while applying for Government permission for foreign collaboration, should furnish information on the following in addition to those required in the FC application form:

> The standard to which the product conforms should be mentioned. In case it is not as per ISI standards, the standard to which it conforms should be indicated. The reasons for not conforming to the ISI standards may also be indicated.

(i) Absorption and Adaptation of Imported Technologies by Indian Entrepreneurs

In order to accelerate meaningful absorption and adaptation of imported technologies by Indian entrepreneurs and their future improvement on a self-reliant basis, it is considered necessary to bring the production and research and development factors in the country closer. It has accordingly been decided that where technology payments are more than Rs. 2 crore during the period of foreign collaboration the following conditions will apply:

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(i) It will be obligatory on the part of Indian entrepreneurs desirous of having foreign collaboration to involve competent R&D personnel (from within the enterprise or from any other competent R&D institution in the relevant area) in the process of technology acquisition right from the negotiating stage.

(ii) The Indian party shall submit a time bound programme for Technology Absorption/Adaptation/Improvement (TAAI) within six months of the issue of foreign collaboration approval. Any default in this regard shall carry punitive measures specified by Government from time to time.

(iii) It will be compulsory for the technology units registered with Department of Scientific and Industrial Research to set up in-house R and D facilities or to enter into long term consultancy agreement with any relevant R&D institution in the country, within a period of two years of receiving the foreign collaboration approval letter. Any default in this regard shall carry punitive measures specified by Government from time to time.

(iv) The foreign collaboration agreement to be executed by the Indian party and the foreign collaboration shall not deny an indigenous R&D institution, identified for the purpose of examining the Technology Absorption/Adaptation/Improvement (TAAI) plans, any access to the production unit of the Indian enterprise.

ACHIEVEMENTS IN THE INDUSTRIAL SECTOR

During the years of planned development since India's independence, industrial production has made rapid strides both in terms of variety and quality. In the first two plan periods, growth and diversification of industry were remarkable. Growth rate picked up substantially in the Third Plan period when the average growth reached 9 per cent. There was some declaration in the successive three annual plans, as the economy was subjected to considerable stress and strains. Growth rate again picked up from Fourth Plan onwards and an average growth rate of about 5 per cent was recorded during this plan period. A growth of about 6 per cent was registered in the Fifth Plan and 6.5 per cent in the Sixth Plan period. In the first three years of the Seventh Plan, the average rate of industrial growth was over 8 per cent. While almost all groups of industries contributed to this growth, it has been particularly marked in areas such as petroleum products, chemicals and chemical products, basic metals, metal products, electronics and other electrical machinery, industrial machinery, transport equipment, mining and power generation. The share of manufacturing in the net domestic product at constant prices increased from 13.4 per cent in 1970–71 to 20 per cent in 1985–86.[7]

The different Five-Year plan periods saw the expansion and diversification

[7] Information received from the Department of Industrial Development.

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of the industrial structure with the establishment of new units in the existing fields as well as setting up of new enterprises. As a result, the number of industrial units has gone up significantly. In 1951, there were only two major units producing Iron and Steel. There are now six major steel plants with a capacity of over 11 million tonnes. The steel produced by them has provided the basis of achieving self-sufficiency in making a number of engineering goods from pin to giant machinery. In the field of new industries like the tractors, electronics, telecommunication, fertiliser and other industries that practically did not exist in 1951 the country has made tremendous progress and import of these products has been brought down to the minimum. Rapid progress was also made by the drug and chemical industries and the textile industry is no longer confined to cotton and jute, but covers different types of synthetic fibres. The machine building industry too has made rapid strides. The engineering industry can supply virtually the entire requirements of power generating equipment, equipment for railways, road transport and communications. Self-sufficiency has been reached in various industries such as sugar machinery, cement machinery, boilers, transport equipments and large number of consumer durables.

The net turn-over of some of the major industries in Central Public Enterprises during 1985–86 and 1986–87 is given in Table 8.1.

Table 8.1
Net Turnover of Public Enterprise Industries

(Rs. in crores)

Sl. No.	*Group of Industries*	*Turnover*[8] *1985–86*	*1986–87*
1.	Steel	4735.96	4589.00
2.	Minerals & Metals	1059.41	1225.97
3.	Coal	2814.10	3210.25
4.	Petroleum	20938.22	23371.41
5.	Chemicals, Fertilisers and Pharmaceuticals	2920.74	3346.61
6.	Heavy Engineering	2252.96	2500.65
7.	Medium and Light Engineering	1569.88	2018.15
8.	Transportation and Equipment	1942.66	2156.46
9.	Consumer Goods	587.71	703.91
10.	Agro-based Products	71.58	50.29
11.	Textiles	768.01	776.40
12.	Power	563.86	694.74
	Total	40225.09	44643.84

[8] Bureau of Public Enterprises, *Public Enterprises Survey, 1986–87*, Vol. I.

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THE PUBLIC SECTOR

One of the important aspects of the country's industrial policy has been the stress laid on the public sector. There has accordingly been a spectacular growth of the public sector since the inception of planning. In 1951 there were only five Public Sector Undertakings and their number rose to 226 (excluding two financial institutions and nine enterprises where Central Government have no direct responsibility for management) by the end of 1986–87. Investment in public sector has also grown from Rs. 29 crore to Rs. 61,603 crore during this period. Similarly in regard to the number of employees, profits earned, capacity utilisation, quantum of goods produced and exports, the public sector has been growing rapidly. The contributions of the public sector cannot be measured in terms of profitability alone. Their role in discharging certain socio-economic objectives too is important. In matters like development of backward regions, provision of public utility services at subsidised rates, selling basic inputs or products at administered prices, providing medical, educational and housing facilities to employees, etc. also, the public sector as a whole has been an effective instrument of government policy.[9]

The public sector enterprises occupy a pivotal position in the Indian economy. They are prominent in key areas of industries, supplying basic inputs like coal, steel, minerals, metals and heavy equipment, including those required for generating power, to commerce and industry. The public sector is also operating service enterprises in the fields of trading and marketing and transportation, consultancy and tourism, etc. The health and well-being, current performance and future development plans, etc. of these undertakings are a matter of public concern and interest. The performance of the country in almost every economic activity depends on the public sector performance. While the concept of professionalised management and autonomy have been accepted for the public sector units, a system of continuous appraisal of their performance and accountability through Administrative Ministries to the Parliament and the tax-payer is always maintained.

[9] Address by Shri N. D. Tiwari, the then Minister for Industry at the Seminar "Industrial Development", New Delhi, May 4, 1984.

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APPENDIX 8.1

Industrial Policy Resolution

New Delhi April 30, 1956

No. 91/CF/48. The Government of India set out in their Resolution dated April 6, 1948, the policy which they proposed to pursue in the industrial field. The Resolution emphasised the importance to the economy of securing a continuous increase in production and its equitable distribution, and pointed out that the State must play a progressively active role in the development of industries. It laid down that besides arms and ammunition, atomic energy and railway transport, which would be the monopoly of the Central Government, the State would be exclusively responsible for the establishment of new undertakings in six basic industries—except where in the national interest, the State itself found it necessary to secure the cooperation of private enterprise. The rest of the industrial field was left open to private enterprise though it was made clear that the State would also progressively participate in this field.

2. Eight years have passed since this declaration on industrial policy. These eight years have witnessed many important changes and developments in India. The Constitution of India has been enacted, guaranteeing certain Fundamental Rights and enunciating Directive Principles of State Policy. Planning has proceeded on an organised basis, and the First Five-Year Plan has recently been completed. Parliament has accepted the socialist pattern of society as the objective of social and economic policy. These important developments necessitate a fresh statement of industrial policy, more particularly as the Second Five-Year Plan will soon be placed before the country. This policy must be governed by the principles laid down in the Constitution, the objective of socialism, and the experience gained during these years.

3. The Constitution of India, in its preamble, has declared that it aims at securing for all its citizens—

> JUSTICE, Social, economic and political;
> LIBERTY of thought, expression, belief, faith and worship;
> EQUALITY of status and of opportunity; and to promote among them all.
> FRATERNITY assuring the dignity of the individual and the unity of the Nation.

In its Directive Principles of State Policy, it is stated that—

> The State shall strive to promote the welfare of the people by securing and protecting as effectively as it may a social order in which justice, social, economic and political, shall inform all the institutions of the national life.

Further that—

> The State shall, in particular, direct its policy towards securing—
>
> (a) that the citizens, men and women equally, have the right to an adequate means of livelihood;
>
> (b) that the ownership and control of the material resources of the community are so distributed as best to subserve the common good;

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(c) that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment;
(d) that there is equal pay for equal work for both men and women;
(e) that the health and strength of workers, men and women and the tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength:
(f) that childhood and youth are protected against exploitation and against moral and material abandonment.

4. These basic and general principles were given a more precise direction when Parliament accepted in December 1954, the socialist pattern of society as the objective of social and economic policy, industrial policy, as other policies, must therefore be governed by these principles and directions.

5. In order to realise this objective, it is essential to accelerate the rate of economic growth and to speed up industrialisation and, in particular, to develop heavy industries and machine making industries, to expand the public sector and to build up a large and growing cooperative sector. These provide the economic foundations for increasing opportunities for gainful employment and improving living standards and working conditions for the mass of the people. Equally, it is urgent, to reduce disparities in income and wealth which exist today, to prevent private monopolies and the concentration of economic power in different fields in the hands of small numbers of individuals. Accordingly, the State will progressively assume a predominant and direct responsibility for setting up new industrial undertakings and for developing transport facilities. It will also undertake State trading on an increasing scale. At the same time, as an agency for planned national development, in the context of the country's expanding economy, the private sector will have the opportunity to develop and expand. The principle of cooperation should be applied wherever possible and a steadily increasing proportion of the activities of the private sector developed along cooperative lines.

6. The adoption of the socialist pattern of society as the national objective, as well as the need for planned and rapid development, require that all industries of basic and strategic importance, or in the nature of public utility services, should be in the public sector. Other industries which are essential and require investment on a scale which only the State, in present circumstances, could provide, have also to be in the public sector. The State has therefore to assume direct responsibility for the future development of industries over a wider area. Nevertheless, there are limiting factors which make it necessary at this stage for the State to define the field in which it will undertake sole responsibility for further development, and to make a selection of industries in the development of which it will play a dominant role. After considering all aspects of the problem, in consultation with the Planning Commission, the Government of India have decided to classify industries into three categories, having regard to the part which the State would play in each of them. These categories will inevitably overlap to some extent and too great a rigidity might defeat the purpose in view. But the basic principles and objectives have always

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to be kept in view and the general directions hereafter referred to be followed. It should also be remembered that it is always open to the State to undertake any type of industrial production.

7. In the first category will be industries the future development of which will be the exclusive responsibility of the State. The second category will consist of industries, which will be progressively State owned and in which the State will therefore generally take the initiative in establishing new undertakings, but in which private enterprise will also be expected to supplement the effect of the State. The third category will include all the remaining industries, and their future development will, in general, be left to the initiative and enterprise of the private sector.

8. Industries in the first category have been listed in Schedule A of this Resolution. All new units in these industries, save where their establishment in the private sector has already been approved, will be set up only by the State. This does not preclude the expansion of the existing privately owned units, or the possibility of the State securing the cooperation of private enterprise in the establishment of new units when the national interests so require. Railways and air transport, arms and ammunition and atomic energy will, however, be developed as Central Government monopolies. Whenever cooperation with private enterprise is necessary, the State will ensure, either through majority participation in the capital or otherwise, that it has the requisite powers to guide the policy and control the operations of the undertakings.

9. Industries in the second category will be those listed in Schedule B. With a view to accelerating their future development, the State will increasingly establish new undertakings in these industries. At the same time private enterprise will also have the opportunity to develop in this field, either on its own or with State participation.

10. All the remaining industries will fall in the third category, and it is expected that their development will be undertaken ordinarily through the initiative and enterprise of the private sector, though it will be open to the State to start any industry even in this category. It will be the policy of the State to facilitate and encourage the development of these industries in the private sector, in accordance with the programmes formulated in successive Five-Year Plans, by ensuring the development of transport, power and other services, and by appropriate fiscal and other measures. The State will continue to foster institutions to provide financial aid to these industries, and special assistance will be given to enterprises organised on cooperative lines for industrial and agricultural purposes. In suitable cases, the State may also grant financial assistance to the private sector. Such assistance, especially when the amount involved is substantial, will preferably be in the form of participation in equity capital, though it may also be in part in the form of debenture capital.

11. Industrial undertakings in the private sector have necessarily to fit into the framework of the social and economic policy of the State and will be subject to control and regulation in terms of the Industries (Development and Regulation) Act and other relevant legislation. The Government of India, however,

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recognise that it would, in general, be desirable to allow such undertakings to develop with as much freedom as possible, consistent with the targets and objectives of the national plan. When there exist in the same industry both privately and publicly owned units, it would continue to be the policy of the State to give fair and non-discriminatory treatment to both of them.

12. The division of industries into separate categories does not imply that they are being placed in water-tight compartments. Inevitably, there will not only be an area of overlapping but also a great deal of dovetailing between industries in the private and the public sectors. It will be open to the State to start any industry not included in Schedule A and Schedule B when the needs of planning so require or there are other important reasons for it. In appropriate cases, privately owned units may be permitted to produce an item falling within Schedule A for meeting their own requirements or as by-products. There will be ordinarily no bar to small privately owned units undertaking production, such as the making of launches and other light-craft, generation of power for local needs and small scale mining. Further, heavy industries in the public sector may obtain some of their requirements of lighter components from the private sector, while the private sector in turn would rely for many of its needs on the public sector. The same principle would apply with even greater force to the relationship between large scale and small scale industries.

13. The Government of India would, in this context stress the role of cottage and village and small scale industries in the development of the national economy. In relation to some of the problems that need urgent solutions, they offer some distinct advantages. They provide immediate large scale employment; they offer a method of ensuring a more equitable distribution of the national income and they facilitate an effective mobilisation of resources of capital and skill which might otherwise remain unutilised. Some of the problems that unplanned urbanisation tends to create will be avoided by the establishment of small centres of industrial production all over the country.

14. The State has been following a policy of supporting cottage and village and small scale industries by restricting the volume of production in the large scale sector, by differential taxation, or by direct subsidies. While such measures will continue to be taken, whenever necessary, the aim of the State policy will be to ensure that the decentralised sector acquires sufficient vitality to be self-supporting and its development is integrated with that of large scale industry. The State will, therefore, concentrate on measures designed to improve the competitive strength of the small scale producer. For this it is essential that the technique of production should be constantly improved and modernised, the pace of transformation being regulated so as to avoid, as far as possible, technological unemployment. Lack of technical and financial assistance, of suitable working accommodation and inadequacy of facilities for repair and maintenance are among the serious handicaps of small scale producers. A start has been made with the establishment of industrial estates and rural community workshops to make good these deficiencies. The extension of rural electrification and the availability of power at prices which the workers can afford will

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also be of considerable help. Many of the activities relating to small scale production will be greatly helped by the organisation of industrial cooperatives. Such cooperatives should be encouraged in every way and the State should give constant attention to the development of cottage and village and small scale industries.

15. In order that industrialisation may benefit the economy of the country as a whole, it is important that disparities in levels of development between different regions should be progressively reduced. The lack of industries in different parts of the country is very often determined by factors such as the availability of the necessary raw materials or other natural resources. A concentration of industries in certain areas has also been due to the ready availability of power, water supply and transport facilities which have been developed there. It is one of the aims of national planning to ensure that these facilities are steadily made available to areas which are at present lagging behind industrially or where there is greater need for providing opportunities for employment, provided the location is otherwise suitable. Only by securing a balanced and coordinated development of the industrial and the agricultural economy in each region, can the entire country attain higher standards of living.

16. This programme of industrial development will make large demands on the country's resources of technical and managerial personnel. To meet these rapidly growing needs for the expansion of the public sector and for the development of village and small scale industries, proper managerial and technical cadres in the public services are being established. Steps are also being taken to meet shortages at supervisory levels, to organise apprenticeship schemes of training on a large scale both in public and in private enterprises, and to extend training facilities in business management in universities and other institutions.

17. It is necessary that proper amenities and incentives should be provided for all those engaged in industry. The living and working conditions of workers should be improved and their standard of efficiency raised. The maintenance of industrial peace is one of the prime requisites of industrial progress. In a socialist democracy labour is a partner in the common task of development and should participate in it with enthusiasm. Some laws governing industrial relations have been enacted and a broad common approach has developed with the growing recognition of the obligations of both management and labour. There should be joint consultation and workers and technicians should, wherever possible, be associated progressively in management. Enterprises in the public sector have to set an example in this respect.

18. With the growing participation of the State in industry and trade, the manner in which these activities should be conducted and managed assumes considerable importance. Speedy decisions and a willingness to assume responsibility are essential if these enterprises are to succeed. For this, wherever possible, there should be decentralisation of authority and their management should be along business lines. It is to be expected that public enterprises will augment the revenues of the State and provide resources for further development

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in fresh fields. But such enterprises may sometimes incur losses. Public enterprises have to be judged by their total results and in their working they should have the largest possible measure of freedom.

19. The Industrial Policy Resolution of 1948 dealt with a number of other subjects which have since been covered by suitable legislation or by authoritative statements of policy. The division of responsibility between the Central Government and the State Governments in regard to industries has been set out in the Industries (Development and Regulation) Act. The Prime Minister, in the statement in Parliament on April 6, 1949, has enunciated the policy of the State in regard to foreign capital. It is, therefore, not necessary to deal with these subjects in this resolution.

20. The Government of India trust that this restatement of their industrial policy will receive the support of all sections of the people and promote the rapid industrialisation of the country.

SCHEDULE A

1. Arms and ammunition and allied items of defence equipment.
2. Atomic energy.
3. Iron and steel.
4. Heavy castings and forgings of iron and steel.
5. Heavy plant and machinery required for iron and steel production, for mining, for machine tool manufacture and for such other basic industries as may be specified by the Central Government.
6. Heavy electrical plant including large hydraulic and steam turbines.
7. Coal and lignite.
8. Mineral oils.
9. Mining of iron ore, manganese ore, chrome ore, gypsum, sulphur, gold and diamond.
10. Mining and processing of copper, lead, zinc, tin, molybdenum and wolfram.
11. Minerals specified in the Schedule to the Atomic Energy (Control of Production and Use) Order, 1953.
12. Aircraft.
13. Air transport.
14. Railway transport.
15. Shipbuilding.
16. Telephones and telephone cables, telegraph and wireless apparatus (excluding radio receiving sets).
17. Generation and distribution of electricity.

SCHEDULE B

1. All other minerals except "minor minerals" as defined in Section 3 of the Minerals Concession Rules, 1949.
2. Aluminium and other non-ferrous metals not included in Schedule 'A'.
3. Machine tools.

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4. Ferro alloys and tool steels.
5. Basic and intermediate products required by chemical industries such as the manufacture of drugs, dyestuffs and plastics.
6. Antibiotics and other essential drugs.
7. Fertilisers.
8. Synthetic rubber.
9. Carbonisation of coal.
10. Chemical pulp.
11. Road transport.
12. Sea transport.

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APPENDIX 8.2

Statement on Industrial Policy

July, 1980

Industrial Policy Resolution 1956

The Industrial Policy Resolution 1956 has served as the corner-stone of the Congress Government Policy-frame for the past quarter of a century. The industrial policy announcement of 1956 in fact reflects the value system of our country and has shown conclusively the merit of constructive flexibility. In terms of this Resolution the task of raising the pillars of economic infrastructure in the country was entrusted to the public sector for reasons of its greater reliability, for the very large investments required and the longer gestation periods of the projects crucial for economic development. The 1956 Resolution, therefore, forms the basis of this statement.

Take-off Stage

2. Industrialisation in a developing country has two aspects viz., optimum utilisation of installed capacity and expansion of industries. The industrial progress of India during the past three decades can be attributed to the policies pursued by the Congress Government. While the country had reached a take off stage towards mid-1970s, both the growth channels—optimum utilisation of installed capacity as well as expansion of industries were choked off by the 33-months-rule of the Janata Party and its successor Government. The runway of the economy has been damaged by the last two governments and the entire process of development was put in reverse gear.

Revival of the Economic Infra-structure

3. The first task before us, therefore, is the revival of the economy which is presently inhibited by infrastructural gaps and inadequacies in performance. This put the economy into a vicious cycle of shortages of major industrial inputs like energy, transport and coal. To normalise the situation, the Government are working on war-footing to break this vicious circle and to put the economy again on its feet.

Industrialisation and Economic Progress

4. Industrialisation is a *sine qua non* of economic progress. Our Government is committed to rapid and balanced industrialisation of the country with a view to benefiting the common man in the shape of increasing availability of goods at fair prices, larger employment and higher per capita income. A higher standard of living implies that more of industrial goods go into the consumption basket of the people. Industrialisation is also essential to provide the much needed

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support for agriculture and for the development of infrastructural facilities like energy and transport. The net economic impact of industrialisation must travel down ultimately to the maximum number of people.

Distribution of Benefits of Industrialisation

5. The pattern of distribution of benefits of industrialisation should be such as to cover as large a segment of the country's population, both rural and urban, while avoiding economic concentration in a few hands. New thrusts need to be made to establish a dynamic *industrial economy* as indicated in the election manifesto of the Congress Party. Now that the Congress Party has been entrusted with the responsibility of the Government, what is needed above all is a set of pragmatic policies which will remove the lingering constraints to industrial production and, at the same time act as catalysts for faster growth in the coming decades, within the following socio-economic objectives:

Socio-Economic Objectives

- Optimum utilisation of the installed capacity.
- Maximising production and achieving higher productivity.
- Higher employment generation.
- Correction of regional imbalances through a preferential development of industrially backward areas.
- Strengthening of the agricultural base by according a preferential treatment to agro-based industries, and promoting optimum inter-sectoral relationship.
- Faster promotion of export-oriented and import substitution industries.
- Promoting economic federalism with an equitable spread of investment and the dispersal of returns amongst widely spread over small but growing units in rural as well as urban areas.
- Consumer protection against high prices and bad quality.

Role of Public Sector

6. An unfortunate development during the recent political vacuum in the country has been an erosion of faith in the public sector which has been reflected in its rather poor performance in recent years. Public sector, which was conceived to provide the pillars of the country's economic infrastructure, was rendered hollow. The gigantic task before us, therefore, is to rehabilitate faith in the public sector. We have not only to restore people's faith in the public sector but also evolve effective operational systems of management in the public sector undertakings. The public sector has to be identified as people's sector and not as "No body's sector" as was rendered by the last Government. Public sector constitutes a substantial segment of industrial activity in the country and its contribution in terms of generating surplus and employment for further growth of the economy needs to be improved.

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Unit-by-unit Examination for Corrective Steps

7. The Government have decided to launch a drive to revive the efficiency of public sector undertakings. Industrial undertakings in this sector will be closely examined on a unit-by-unit basis and corrective action will be taken in terms of a time-bound programme wherever necessary. Some of the units were allowed to get into chronic problems and instead of contributing surpluses, tended to put a drain on the public exchequer. Priority will be accorded to convert losing concerns into viable ones through broad restructuring of the system and by providing dynamic and competent management.

Management cadre

8. On the positive side, public sector will continue playing an increasingly important role. Part of the reasons for unsatisfactory performance of some of the units in the public sector has been the absence of proper management cadre. It is proposed to take effective steps to build the public sector undertakings and emphasis will be placed on developing management cadres in functional fields such as operations, finance, marketing and information system.

Role of Private Sector

9. The Government would pursue the goal of a vibrant, self-reliant and modern economy in which all sectors and all segments of the society have a positive role to play. The Industrial Policy Resolution of 1956 assigned a role for industrial undertakings in the private sector within the framework of socio-economic policy of the State and subject to certain regulations in terms of relevant legislations. Government recognises that it would be, in general, desirable to allow private sector undertakings to develop in consonance with targets and objectives of national plans and policies but shall not permit the growth of monopolistic tendencies or concentration of economic power and wealth in a few hands.

Economic Federation

10. It will be Government's endeavour to reverse the trends of the last three years towards creating artificial divisions between small and large-scale industry under the misconception that these interests are essentially conflicting. While making all efforts towards integrated industrial development, it is proposed to promote the concept of economic federalism with the setting up of a few nucleus plants in each district, identified as industrially backward, to generate as many ancillaries and small and cottage units as possible.

Nucleus Plants

11. A nucleus plant would concentrate on assembling the products of the ancillary units falling within its orbit on producing the inputs needed by a large number of smaller units and making adequate marketing arrangements. The

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nuclei will also ensure a widely spread pattern of investment and employment and will distribute the benefits of industrialisation to the maximum possible. The nucleus plants would also work for upgrading the technology of small units. Small is beautiful only if it is growing just as the phased manufacturing programme with a view to reducing reliance on imported components and materials played an important role in diversifying our industrial structure, a carefully worked out time bound programme for greater ancillarisation in certain industries will contribute considerably towards dispersal of industry and growth of entrepreneurship.

Ancillarisation Effect

11A. The proposed nucleus plants in industrially backward districts would generate a spread-out network of small-scale units or the existing network of small-scale units in an area would acquire a faster growth by the coming up of a nucleus plant in the area. Such a two-way traffic would create an ancillarisation effect in terms of larger employment, more equitable distribution of the benefits of such an industrialisation in the shape of higher per capita income for the larger number of people in the area.

In between the nucleus large plants and the satellite ancillaries, the Government would promote a system of linkages for an integrated industrial development. The Government would evolve scheme of phased development of industrially backward areas through ancillarisation.

Redefining of Small-scale Units

12. In order to boost the development of small-scale industries and to ensure their rapid growth, Government have decided:

(i) to increase the limit of investment in the case of tiny units from Rs. 1 lakh to Rs. 2 lakh;
(ii) to increase the limit of investment in the case of small-scale units from Rs. 10 lakh to Rs. 20 lakh; and
(iii) to increase the limit of investment in the case of ancillaries from Rs. 15 lakh to Rs. 25 lakh.

13. This would eliminate the tendency to circumvent the present limit by understanding the value of machinery and equipment falsification of accounts or resort to 'benami' units. The enhancement of the limit in terms of investment in plants and machinery will also help genuine small-scale units particularly those being set up by young and technically qualified entrepreneurs, to come up. This measure will also facilitate long over due modernisation of many of the existing small scale units.

Financial Support to Small Units

14. One of the major constraints to the growth of decentralised sector has been the difficulties of finance experienced particularly by industrial entrepreneurs

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in small, cottage and rural sectors. Although, there is adequate network of institutional finance, yet there is need for coordinating the flow of capital, both short-term and long-term. Government would evolve a system of coordination to ensure the flow of credit to the growing units in the decentralised sector at the right time and on approximate terms. Government proposes to strengthen the existing arrangements and make such changes as may be necessary to facilitate the availability of credit to the growing units in the small-scale sector.

Buffer Stocks for Critical Inputs

15. In order to assist the growth of small-scale industries it is proposed to introduce a scheme for building up of buffer stocks of essential materials which are often difficult to obtain. For this the existing set-up such as Small Industries Development Corporations in the States and the National Small Industries Corporation in the Centre will also be utilised. Special needs of States which rely heavily on a few essential raw materials will receive priority.

Marketing Support and Reservation of Items for Small Scale Industries

16. Policies regarding marketing support to the decentralised sectors and reservation of items for small-scale industries, shall continue to be in force in the interest of growth of the small-scale industries.

Village Industries

17. Government is determined to promote such a form of industrialisation in the country as can generate economic viability in the villages. Promotion of suitable industries in rural areas will be accelerated to generate higher employment and higher per capita income for the villagers in the country without disturbing the ecological balance. Handlooms, handicrafts, khadi and other village industries will receive greater attention to achieve a faster rate of growth in the villages.

Correcting Regional Imbalances

18. Industrialisation will play an important role in correcting the regional imbalances and reviving the industrial growth to lead the economy once again to the take-off stage. For the achievement of this goal, Government have decided to encourage dispersal of industry and setting of units in industrially backward areas. Special concessions and facilities will be offered for this purpose and these incentives will be growth and performance oriented.

Evaluation of Incentives

19. In the past, numerous incentives had been provided to industries from time to time. It is Government's considered view that all incentives given to industry must be performance oriented. It is, therefore, proposed, that a regular periodic assessment will be made of the impact of these incentives to

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see the extent to which they have fulfilled their initial purpose. Unless it is apparent that the purpose is being served, Government will review the system of incentives.

Generation of Employment and Higher Production

20. Industrial development has to be viewed in the broader context of generating higher production and employment. Overcoming the problems of poverty and backwardness need a multi-pronged approach. An integral part of this approach would be to create new focal points of industrial growth which have the maximum effect on the quality of life. This will have to be based essentially on the utilisation of local materials and locally available manpower. The ripple effect of substantial investments in backward districts in the past has in many cases not been adequate, mainly because such investments did not have effective linkages with local resources. The Government therefore propose to encourage investment by public and private sector which will meet these criteria and would also promote a network of spread out ancillaries.

Endorsement of Licences Reflect Existing Productivity Capacity

21. In 1975, the Government had taken certain decisions in regard to the recognition of additional capacities as a result of replacement and modernisation of equipment, liberalisation of investment procedure for stimulating production in a certain selected industries and for endorsement of excess production over licensed capacity on the basis of a simplified procedure. The Government feel that in several industries which are important from the point of view of national economy or are engaged in the production of articles of mass consumption, the productive capacity endorsed on the original licences or as amended in terms of the 1975 notifications may not reflect the full productive potential of the unit. As a result of increased labour productivity or technological improvements, the productive capacities may have increased.

The Government propose to recognise such capacities on a selective basis. It would not be in public interest to permit licensing procedures or a rigid locational policy to stand in the way of maximising production. The necessary notifications listing the industries, and spelling out the simplified procedures for such endorsements will be issued separately.

Provision for Automatic Growth

22. In view of the constraints on resources in a developing country like ours, and also taking into account the considerable increases in the prices of capacital goods, particularly those required to be imported it is necessary to ensure that no avoidable restrictions are placed on the fullest utilisation of the existing industrial capacities. This is particularly true of the core industries, of industries which have direct linkages with the core sector, and industries which have a long-term export potential. All these industries are of basic, critical and strategic importance for the growth of the economy. In February 1973, the Government

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had announced a list of such industries, following the classification of industries, mentioned in the First Schedule to the Industries (Dev. & Reg.) Act, 1951. Later in 1975, Government had permitted the facility for automatic expansion in respect of 15 industries. The extent of increased capacity permitted in respect of these industries was limited to 5 per cent per annum or 25 per cent in a five-year plan period and could be undertaken in one or more stages. This expansion was to be in addition to the normal permissible expansion in production by 25 per cent of the approved capacity. The Government have now decided that this facility will also be extended to other industries included in Appendix I. In this behalf, the necessary notifications will be issued separately.

Export-oriented Units

23. Industry must contribute its share in creating a more favourable balance of trade by catering to the ever increasing foreign markets. The Government would sympathetically consider requests for setting up 100 per cent export oriented units, requests for expansion of existing units exclusively for purposes of export and for allowing higher production for exploiting fully the emerging export opportunities.

Advanced Technology for Economies of Scale

24. In a number of cases Indian industry has not been able to compete in markets abroad because the scale of output which is related to the level of domestic demand is too small to give them the advantages of modern technology and economies of scale. In cases where a larger production base would increase the competitiveness of Indian industry abroad, the Government will consider favourably the induction of advanced technology and will permit creation of capacity large enough to make it competitive in world markets, provided substantial exports are likely. The purpose of introducing such a policy would be not only to encourage exports but also to enable industry to produce better quality products at lower costs which will ultimately benefit the consumer in terms of price and quality.

Research and Development

25. The Indian industry must earmark substantial resources for R&D to constantly up-date technologies with a view to optimal utilisation of scarce resources, better service to the consumer and achieving greater exports. We also have to lay greater emphasis on bringing the benefit of the latest R&D to the medium and small units.

Transfer of Technology

26. The Government will take active measures to facilitate the transfer of technology from efficiently operating units to new units. Companies which have well established R & D organisations, and have demonstrated their ability

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to absorb, adapt and disseminate modern technology will be permitted to import such technology as will increase their efficiency and cost-effectiveness. This will not only lead to saving of foreign exchange but would also ensure self-sufficiency and higher foreign exchange earnings.

Modernisation Packages

27. "Modernisation Packages" will be evolved to suit the requirements of each industry, and will include all aspects, i.e. appropriate location and optimum use of energy and the adoption of the right kind of scale and technology in order to minimise costs and improve efficiency in the use of scarce materials, the supply of which come from non-renewable sources. It will be the Government's endeavour to ensure that the process of modernisation percolates down to small units and the villages. As in the case of the large-scale modern industry, where new processes and technologies must replace the old and the traditional ones in the decentralised sector also, improved tools and techniques which will contribute to higher productivity and reduce the drudgery are an essential ingredient of the modernisation, the Government will review the present arrangements in terms of special facilities and incentives such as soft loans, establishing of proper linkages in the field of marketing and strengthening the credit facilities particularly for the decentralised sector.

Energy Industry Dovetailing

28. Until recently, little effort has been made in dovetailing the industry and energy policies; nor has enough attention been paid to the effects of industrial growth on environment and pollution of air and water. The Government has decided that such industrial processes and technologies as would aim at optimal utilisation of energy or the exploitation of alternative sources of energy, would be given special assistance, including finance on concessional terms.

Pollution Control

29. Similarly, activities which have a direct bearing on and will contribute to improved environment and reduce the deleterious effects on pollution of air and water would also be made eligible for special assistance on appropriate terms. The Government will examine the present scheme for soft loans with a view to including in it activities related to energy conservation, exploitation of non-traditional sources of energy like solar energy and control of water and air pollution and also such other specific industrial activities as are in urgent need of modernisation and upgradation of technology. This will be a continuing exercise and the list of industries eligible for soft loan scheme will be reviewed from time to time.

Preserving Ecological Balance

30. The Government is committed to the preservation of ecological balance and for improving living conditions in the urban centres of the country. In

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pursuance of this policy and with a view to encouraging the dispersal of industry, steps have been taken to prevent the growth of industry in the metropolitan cities and the larger towns. Setting up of new industrial undertakings within the limits of such urban centres is not permitted.

31. However, in the implementation of this policy, the Government proposes to remove genuine difficulties without detriment to the basic objectives. It is, therefore, proposed to provide for selective relaxation to enable utilisation of already installed capacities to provide for natural growth and to encourage production for export. The requisite simplification and procedural changes in the application of the present locational policy are being announced separately.

Streamlining Licensing Procedures

32. There has already been considerable simplification and streamlining of licensing procedures. Nevertheless, there is scope for further improvement in reducing the period of time taken for disposal of applications for the creation of new capacities, proposals for substantial expansion, and the production of new items. It is proposed to speed up the processes of examination and decision-making and also to examine the possibilities of further rationalisation and simplification of the system of industrial licensing.

Monitoring System and Data Bank

33. It is also proposed that in future, the agencies connected with the issuance of letters of intent/industrial licences will not merely concern themselves with letters of intent/industrial licences but would also evolve a comprehensive system of monitoring the implementation of the schemes. For this purpose, it is proposed to build up a Data Bank on the progress of various licensed/registered investment schemes.

34. The objectives of the Data Bank will be to have, in respect of all major investment proposals, information regarding the progress in regard to the import of capital goods, the status in regard to the application for term lending and also the physical implementation of the scheme. The establishment of such a Data Bank will also enable the Government to ensure that where parties have wilfully failed to implement the letters of intent or have tried to pre-empt capacity are dealt with suitably.

Industrial Sickness: Devising an Early Warning System

35. The Government is concerned at the growing problem of sickness in a large number of industrial undertakings. While it is recognised that it would be in the national interest to protect the investments in these undertakings by appropriate remedial action, it is also the view of the Government that deliberate mismanagement and financial improprieties leading to sickness should be dealt with firmly. Various all-India financial institutions have set up arrangements to detect sickness in undertakings at an early stage with a view to taking necessary corrective action. To ensure this the Government proposes to introduce

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a checklist to serve as "an early warning system" for identifying symptoms of sickness.

Merger and Amalgamation

36. In the case of existing sick undertakings which show adequate potential for revival, it would be the policy of the Government to encourage their merger with healthy units which are capable of managing the sick undertakings and restoring their viability. For this purpose, the existing tax concessions under Section 72-A of the Income Tax Act will be made more liberally available to amalgamation proposals which will serve the purpose of revival of sick units. The existing guidelines will be reviewed with a view to facilitating greater reliance on voluntary mergers of sick units with healthy units which are capable of implementing a viable revival scheme.

Take-over to be in Exceptional Cases

37. It is also the Government's policy to ensure that the State Governments, the financing institutions and the labour cooperate effectively for the revival of the sick units. Recourse to take-over of the management under the Industries (Development and Regulation) Act will be taken only in exceptional cases on grounds of public interest where other means for the revival of sick undertakings are not considered feasible. Where such take-over becomes necessary the State Governments will, in appropriate cases, be expected to assume responsibility for the finance and management of the undertaking.

Industrial Relations

38. Deteriorating industrial relations in the last three years affected a number of important sectors of economy and led to fall in the industrial production. The Government attaches great importance to the interests and welfare of labour, but they also consider that the maintenance of constructive and cordial industrial relations in which both labour and management have to cooperate in a responsible manner is essential for the sustained growth of economy. The Government has decided to revive the tripartite labour Conference and it is hoped that through an attitude of mutual understanding and constructive cooperation it will be possible to establish higher standards of productivity and industrial harmony.

Industrial Pricing Policy

39. It is the Government's policy that while all reasonable facilities and incentives will be provided to industry, it must recognise and accept its social responsibility particularly in terms of maintaining the price line, avoiding hoarding and speculation, and maximising production on an efficient basis. It is proposed to start a dialogue with the industry to ensure that within a stipulated period of time, the prices are rationalised to the benefit of the consumer.

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District Industries Centres

40. The Government has reviewed the scheme of district industries centres which has not produced benefits commensurate with the expenditure incurred. The Government therefore propose to initiate more effective alternatives.

Industrial Investment: An Inter-disciplinary Concept

41. Industrial development is an inter-disciplinary concept. It pertains not only to the manufacturing activity but to all related infrastructural development: licensing and corporate policies; financial, fiscal, trade and pricing policies; industrial relations and management; scientific and technological developments; and broad socio-economic policies. As such, the implementation of the industrial policy requires; close and effective coordination and monitoring at various levels at the Centre as well as between the Centre and the States. Its ultimate success will also depend on the extent of cooperation that Industry receives from the other sections of society.

42. The Government of India trust that the objectives set out in this Paper and the measures outlined herein to achieve them will receive the support of all sections of the people to enable the country to attain its larger goals, namely faster economic growth, prosperity to its citizens, and the establishment of an egalitarian society.

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APPENDIX 8.3

List of Broad Banded Industries for the Purpose of Licensing under the 1984 Scheme

1. Machine tools.
2. Motorised two-wheelers and three-wheelers.
3. Motorised four-wheeled vehicles.
4. Paper and pulp.
5. Chemical, pharmaceutical, petrochemical and fertiliser machinery industry.
6. Steel pipes and tubes.
7. Metallurgical machinery.
8. Earthmoving machinery.
9. Agricultural machinery.
10. Auto ancillaries.
11. All types of instruments for automobiles.
12. Diesel engines.
13. Aerial ropeways.
14. Marine freight containers.
15. Railway wagons and coaches.
16. Vacuum and air brakes.
17. Steel fabricated structures.
18. Off-shore platforms.
19. Cranes.
20. Typewriters.
21. Particle board, fibre board and medium density fibre board
22. Electrical equipments.
23. Synthetic fibre industry.
24. Material handling equipment.
25. Electronic industry.
26. Glass hollow-ware.
27. Electrical cables and wires (excluding telecommunication cables).
28. Ball and ball bearing industry.
29. Chemical industry.
30. Soya products.
31. Textile industry—fuller flexibility.
32. Milk products (excluding baby food).
33. Textile machinery industry.
34. Steel casting/steel ingots/billets industry.
35. GP/GC sheets and coated strips.

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APPENDIX 8.4

List of Industries Delicensed for Non-MRTP/Non-FERA Companies Including Bulk Drugs along with their Formulations

1. Iron castings i.e. special alloy iron castings, malleable iron castings and SG iron castings, sponge iron and pelletisation.
2. Steel structurals fabrications excluding steel structurals produced by steel making in electric arc furnaces and further to convert them into rolled products like window sections, telegraphic channels, lift rails, etc. popularly known as light structurals.
3. Electrical equipment, namely:
   (a) Equipment for exploitation of alternate sources of energy like solar, wind power, bio-mass including biogas, geothermal energy, tidal power and sea power.
   (b) Steam turbines of and below 20 MW and mini and micro hydel systems, equipment.
   (c) Power and distribution transformers, power capacitors switch gears, electrical motors and GLS lamps.
   (d) Diesel generating sets.
4. Electronic components.
5. Automotive ancillaries.
6. Cycles.
7. Industrial machinery including rubber machinery, printing machinery, footwear machinery, meat and poultry machinery.
8. Machine tools.
9. Agricultural implements.
10. Miscellaneous mechanical and engineering industries, namely;
    (a) Plastic-moulded goods;
    (b) Hand tools, small tools and cutting tools;
    (c) Pressure cooker, cutlery and steel furniture;
    (d) Lanterns of all types;
    (e) Fuel efficient stoves;
    (f) Water pumps beyond 10 cm.
11. Industrial sewing machines.
12. Office equipment as listed below:
    (1) Multiplication and reproduction equipment;
    (2) Word processors;
    (3) Cash registers/invoicing machines;
    (4) Dictaphone;
    (5) Micro-filming/micro-fichereaders.
13. Surgical, industrial and scientific instruments.

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14. Industrial and medical gases.
15. Following drugs/drug intermediates:
    Rifampicin.
    Dapsone.
    Clofazimine.
    Primaquin.
    EMME (ethexy methylene malonic ester).
    Novaldiamine.
    Insulin.
    Anti-cancer drugs.
    Vitamin B_6.
    Norgestral.
    Piperazine.
    New bulk drugs developed through indigenous research.
16. Paper and pulp, namely:
    (a) Writing, printing and wrapping paper from agricultural residue, waste and bagasse.
    (b) Cotton seed linter pulp.
17. Canned fruit and vegetable products, protein and processed foods, vegetable based weaning food, marine products and cattle feed.
18. Vegetable oils, namely:
    (a) Solvent extraction of oil/oil cakes from minor seeds excluding cotton seeds.
    (b) Rice bran oil.
19. Soap and cosmetics, namely:
    (a) Soap, cosmetics, perfumery and toilet preparations.
    (b) Detergents of ISI standards.
20. Leather goods.
21. Surgical and medicinal rubber products.
22. Glassware.
23. Ceramic, namely:
    (a) Refractories and furnace lining bricks.
    (b) China ware, pottery and sanitary ware.
    (c) H.T. insulators.
    (d) Tiles.
    (e) Graphite ceramics.
24. Insulating boards, gypsum boards, wall boards and the like.
25. Printing including litho printing.
26. Roller flour milling industry.
27. Chemical industry.

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Inorganic Heavy Chemicals:

1. Aluminium flouride and cryolite through recovery route.
2. Bromine.
3. Ferrous/ferric salts (other than those reserved for small-scale sector).
4. Hydrogen peroxide.
5. Magnesium salts (other than those reserved for small-scale sector).
6. Soda ash (standard solvay process).
7. Sodium hydrosulphite through formate route.
8. Titanium dioxides (both anatase and rutile grades).
9. Castor oils based chemicals.
10. Furfural.

Organic heavy chemicals

11. Metaphenoxy benzaldehyde.
12. Methanol.
13. Pentaerythritol.
14. Phenol and acetone based chemicals

Fine Chemicals including Photographic Chemicals.

15. Paint driers like nephthenates octoates, linoleates, etc.

Miscellaneous Chemicals

16. Chemicals recovered from waste streams/solid wastes/gaseous emissions generated in the manufacturing process of the company.
17. Chemicals obtained as co-products or by-products.

28. Computer software industry.

29. *Drugs Industry*

1. Aspirin.
2. Digoxin.
3. Hydrochlorothiazide.
4. Isonicotinic acid hydrazide.
5. Thiacetazone.

Para amino salacyclic acid (PAS) and salts

6. Tolbutamide
7. PAS acid
8. PAS sodium
9. Calcium PAS
10. Calcium B. PAS
11. Chloramphenical
12. Amodiaquine
13. Chloroquine

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14. Disthyl carbamazine citrate
15. Frusemide
16. Glyceryl trinitrate
17. Phthalyl sulphathiazole
18. Predinsolene
19. Ether anaesthetic
20. Halothane
21. Thiopental
22. Lidocaine
23. Procaine
24. Nitrous oxide
25. Ibuprofen
26. Chlorpheniramine
27. Epinephrine
28. Mebendazole
29. Bephenium hydroxy naphthoate
30. Metronidazole
31. Ampicillin
32. Sulphamethaxazole
33. Trimethoprin
34. Erythromycin
35. Ethambutol
36. Pyrazinamide
37. Griseofulvin
38. Hydroxy cobalamine cyanocobalamine
39. Dextran
40. Isosorbide dinitrate
41. Propranolol
42. Verapamil
43. Hydrallazine
44. Methyl dopa
45. Neomycin
46. Bacitracin
47. Betamethasone
48. Benzyl benzoate
49. Sulpha-cetamide
50. Pilocarpine
51. Homatropine
52. Chlorhexidine
53. Centrimide
54. Parachlore metaxylenol
55. Promethazine
56. Dexamethasone
57. Ethinyl oestradiol
58. Norethisterone

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59. Glybenclamide
60. Chlorpropamide
61. Neostigmine
62. Suxamethomium (succinyl choline chloride)
63. Ergometrine/methyl ergometrine
64. Oxytocin
65. Amitriptyline
66. Imipramine
67. Triluoperazine
68. Aminophylline/theophylline
69. Salbutamol
70. Ephedrine
71. Vitamin A
72. Vitamin D
73. Vitamin C
74. Pentothanates
75. Ferrous salts
76. Chlorpromazines
77. Hydroxyellinl theophylline
78. Doxyccycline
79. Diazepam
80. Cephalexin
81. Cephradine
82. Cephaloridine.

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APPENDIX 8.5

List of Industries Delicensed for MRTP/FERA Companies for Backward Areas

Part I (Appendix 8.1 Industries Delicensed for Location, in any of the Centrally Declared Backward Areas)

1. Pig iron.
2. Casting and forgings.
3. Alternate energy devices and systems.
4. Transmission line towers.
5. Electrical motors with starters.
6. Internal combustion engines.
7. Electronic components.
8. Automotive components, spares and ancilliaries.
9. Pollution control equipment.
10. Process pumps.
11. Process equipment for utilisation of recycling of wastes.
12. Chemical process plants.
13. Machinery for chemical industry as listed below:
    - (i) Rupture discs.
    - (ii) Special pneumatic calibrators.
    - (iii) Karbate pumps.
    - (iv) Centrifugal gas compressors.
14. Air compressors.
15. Industrial valves.
16. Diary industry equipment, namely homogenisers.
17. Machine tools.
18. Tool room products.
19. Industrial machinery for drilling and production of mineral oil/natural gas.
20. Mechanised sailing vessels up to 10,000 DWT for units with capacity for meeting the requirements of the oil industry in particular.
21. Sponge iron and pelletisation.
22. Steam turbines of and below 20 MW and mini and micro hydel systems/ equipment.
23. Power and distribution transformers, power capacitors and switchgears.
24. Diesel generating sets.
25. Electronic components.
26. Industrial machinery.
27. Plastic moulded goods.
28. (a) Jigs, fixtures, tools and dies of specialised types and crossland tooling.
    (b) Engineering production aids such as cutting and farming tools, patterns and dies and mining tools.

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29. Water pumps beyond 10 cms based on internal combustion engines.
30. High technology reproduction and multiplication equipment.
31. Word processors.
32. Electronic cash registers/invoicing machines.
33. Dictaphone.
34. Micro-filming/micro-fichereaders.
35. Surgical instruments—sterilizers, incubators and the like.
36. Water meters, steam meters, electricity meters and the like.
37. Scientific instruments.
38. Medical gases.
39. (a) Refrigerant gases like liquid nitrogen, carbon dioxide, etc. in large volumes.
    (b) Argon and other rare gases.
    (c) Tonnage plant for manufacture of industrial gases.
40. Writing, printing and wrapping paper from agricultural residue, waste and bagasse.
41. Cotton seed linter pulp.
42. Vegetable oils namely:
    (a) Solvent extraction of oil/oil cakes from minor seeds excluding cotton seeds; and
    (b) Rice bran oil.
43. Detergents of ISI standards.
44. Refractories and furnace lining bricks.
45. H.T. insulators.
46. Graphite ceramics.
47. Gypsum boards, wall boards and the like.

Part II (Non-Appendix 8.1 Industries Delicensed for Location in Category 'A' Backward District)

1. Steel structurals.
2. GLS lamps.
3. Cycles.
4. Agricultural implements.
5. Hand tools and small tools other than those covered under entry No. 28 of Part I.
6. Pressure cooker, cutlery and steel furniture.
7. Lanterns of all types.
8. Fuel efficient stoves.
9. Waterpumps beyond 10 cm based on electric motors.
10. Industrial sewing machines.
11. Multiplication and reproduction equipment other than those covered under entry No. 32 of Part I.

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12. Cash registers/invoicing machines other than those covered under entry No. 32 of Part I.
13. Weighing machines other than electronic types.
14. Mathematical surveying and drawing instruments.
15. Industrial gases other than those covered under entry No. 32 of Part I.
16. Canned fruit and vegetable products, protein and processed foods, vegetable based weaning food, marine products and cattle feed.
17. Soap, cosmetics, perfumery and toilet preparations.
18. Leather goods.
19. Surgical and medical rubber products.
20. Glassware.
21. China ware, pottery and sanitary ware.
22. Tiles.
23. Insulating boards.
24. Printing, including litho printing.

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APPENDIX 8.6

List of Minimum Economic Scale Industries

Sl. No.	*Name of the article*	*Minimum licensed capacity per annum*
1	2	3
1.	Polyester staple fibre	30,000 tonnes
2.	Polyester filament yarn	15,000 tonnes
3.	Nylon filament yarn	12,000 tonnes
4.	Acrylic fibre	12,000 tonnes
5.	LDPE	90,000 tonnes
6.	LLDPE	60,000 tonnes
7.	HDPE	50,000 tonnes
8.	Polypropylene	50,000 tonnes
9.	PVC-VCM	1,00,000 tonnes
10.	Polystyrene	30,000 tonnes
11.	ABS	5,000 tonnes
12.	DMT/TPA	1,00,000 tonnes
13.	Caprolactum	1,00,000 tonnes
14.	LAB	60,000 tonnes
15.	Acrylonitrile	70,000 tonnes
16.	Styrene	80,000 tonnes
17.	MEG	60,000 tonnes
18.	Phthalic anhydride	15,000 tonnes
19.	Oxo-alcohol	30,000 tonnes
20.	Propylene oxide/polyols	12,000 tonnes
21.	SBR	80,000 tonnes
22.	PBR	50,000 tonnes
23.	Soda ash	
	(a) Solvay process	3,30,000 tonnes
	(b) Modified Solvay process	1,50,000 tonnes
24.	Carbon black	40,000 tonnes
25.	STPP	30,000 tonnes
26.	Sulphuric acid	1,00,000 tonnes
27.	Sodium hydrosulphite	10,000 tonnes
28.	Nitric acid	
	(a) Diluted	1,00,000 tonnes
	(b) Concentrated	33,000 tonnes
29.	Methanol	1,00,000 tonnes
30.	Nitrobenzene	30,000 tonnes
31.	Formaldehyde	30,000 tonnes
32.	Pentaerythritol	5,000 tonnes
33.	Aspirin	2,000 metric tonnes
34.	Pencillins	1,000 MMU
35.	6-APA and semi-synthetic pencillins	100 metric tonnes
36.	Vitamin-C	1,000 metric tonnes
37.	Ibuprofen	200 metric tonnes

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Appendix 8.6 *Contd.*

Sl. No.	*Name of the article*	*Minimum licensed capacity per annum*
1	2	3
38.	Ethambutol/DL-2 aminobutanol	100 metric tonnes
39.	Metronidazole and tinidazole	100 metric tonnes
40.	Methyl dopa	100 metric tonnes
41.	Rifampicin	100 metric tonnes
42.	7-ADCA/7 ACA/Caphalosporens	100 metric tonnes
43.	Vitamin-A, (synthetic route starting from isoprene)	500 MMU
44.	Erythromycin	50 metric tonnes
45.	Chloroquin	100 metric tonnes
46.	Chloramphenicol	100 metric tonnes
47.	Trimethoprim	100 metric tonnes
48.	CTVs	
	(i) without automatic insertion and testing	20,000 Nos.
	(ii) with automatic insertion and testing	1,00,000 Nos.
49.	Professional grade PCBs	20,000 Sq. Metres
50.	Picture tubes (both colour & B/W)	5,00,000 Nos.
51.	PABX	20,000 lines
52.	VCR/VCP	
	(a) Assembly operation	50,000 Nos.
	(b) with manufacture of tape deck mechanism	0.3 million Nos.
53.	ICs (bi-polar)	
	(a) from diffused water stage	10 million Nos.
	(b) with diffusion of water	50 million Nos.
54.	Mini Steel Plants	50,000 tonnes (subject to power assurance)
55.	Cold rolled strip units	10,000 tonnes
56.	Hot rolled strip units	40,000 tonnes
57.	Passenger cars	50,000 (in case of cars of 2000 cc and above this could be 30,000)
58.	Two-wheelers	2 lakhs (However, where the unit is expected to export, the capacity is 5,00,000)
59.	Commercial vehicles	25,000
60.	Tractors	25,000
61.	Tyres	1.5 million Nos.
62.	Sugar	2,000 to 3,000 tonnes per day.
63.	Fluorescent tube lamps	10 million Nos.
64.	Storage batteries	8 lakh Nos.
65.	Aluminium extrusions	5,000 tonnes
66.	Phosphatic fertilisers	75,000 tonnes P203 per annum (for DAP)
67.	Super phosphate	200 tonnes per day or 66000 tonnes per year

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Appendix 8.6 *Contd.*

Sl. No.	*Name of the article*	*Minimum licensed capacity per annum*
1	2	3
68.	Bicycles	25,00,000 in an integrated plant subject to the condition that the parts to be manufactured in-house would be only rims, chains and frames.
69.	Synthetic detergents	30,000 tonnes p.a.
70.	Ceiling fans	8,00,000 Nos. p.a.
71.	Domestic refrigerators	5,00,000 Nos. p.a.
72.	Electronic typewriters	15,000 Nos. p.a.
73.	Toilet soap industry	15,000 tonnes p.a.

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9

BACKGROUND TO EVOLVING A NATIONAL INFORMATION POLICY

INTRODUCTION

Information is indispensable for the functioning of a true democracy. People have to be kept informed about current affairs and broad issues—political, social and economic. Free exchange of ideas and free debate are essentially desirable for the government of a free country. While the primary function of the government is to provide comprehensive and objective information on all aspects of the country's life, it has also an educative and mobilising role. It plays an important role in mobilising public opinion and can be an instrument of social change. For an active and intelligent participation in the affairs of a democratic society, people are to be sufficiently well informed about the issues of the day. It demands also an alert and informed participation not only in purely political processes but also in the efforts of the community to adjust its social and economic life to increasingly complex circumstances. Democratic society, therefore, needs a clear and truthful account of events and their background and their causes, a forum for discussion and informed criticism; and a means whereby individuals and groups can express a point of view or advocate a cause.

ROLE OF MASS COMMUNICATION

The role of mass communication in the complex society of today is a positive one. Irrespective of the form of government, the need for mass communication is acknowledged by all. The method used in democratic societies is one of persuasion. Success through the method of persuasion is necessarily slow, particularly at the initial stages, and the results that are achieved are somewhat imponderable. That is one of the reasons why governments in democratic countries which are pursuing development programmes under tight budgets are always apt to apply the axe first on publicity and mass communication projects, whenever some economy measures are contemplated.[1]

The information revolution due to technological advances and the resulting knowledge explosion have given rise to tremendous capability of man to encode, record, reproduce and disseminate information. The postal system, the

[1] R. K. Chatterjee: *Mass Communication*, New Delhi, National Book Trust, 1973, p. 107.

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telegraphs and telephones, the camera, the film, the radio receiver and the television screen have brought about a new dimension in man's horizon, the impact of which is tremendous. Mass media are disseminating facts, transmitting knowledge of many things and providing the speediest and the most effective means whereby the national leaders can approach the people in times of crises and strains. Mass media do not give the news only but they provide information on different aspects of life and its problems. They also provide cultural fare and entertainment.

Mass media have many functions to discharge. They can provide the motivation for social change, create the climate for development, and influence attitudes and traditional practices. They can also help in imparting various types of education and training, to the farmers in the field, to the small entrepreneurs in village industries, to teachers in training institutes, to the extension personnel on various subjects, to the *gram sewak*, to the social education personnel and to the coordinating authorities in rural areas. They can help community decision-making through discussion as, for example, when a talk is broadcast for the radio rural forum. The talk inspires discussion and the facts are given which help the participants to arrive at their own decisions.

Electronics Media

The electronics, latest in the mass media, is of special value as it can reach millions at home, overcoming the barriers of illiteracy. They do not depend on the physical facilities of roads and communications for reaching their target. In fact, because of the introduction of the electronic media, urbanisation is no longer an essential condition for wider mass communication.

The influence of the various media varies. The newspaper is undoubtedly powerful but it is less direct than the broadcast media and certainly less intimate.

Between radio and television on the one hand, and film on the other, the difference is that radio and television being capable of providing an immediate impact constitute some sort of a compelling medium for the generation of reactions and responses. To the nation's motion picture viewer, the reaction is remote as the events to which a picture relates have happened some time in the past and have already been projected before the public through more immediate media. However, the impact of a film is more permanent than that of radio or television as, with time at its disposal, the theme can be presented in a more appealing manner with planning, expertise and comprehension.

Press Media

The role of the press is of special importance. The press has the opportunity of serving both the Government and the people. The press has to be highly responsible and the Government tolerant, so that while government activities are exposed to the limelight of press criticism, no animosity is generated

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between the Government and the press. The press has to discharge this function by holding for itself the highest standards of conduct and rectitude.

The influence of the smaller newspapers away from the metropolis is unique. They seem to be able to exercise a lot of influence on the people on local issues and problems. The main reason being that these issues are not debated and thrashed out so extensively all over the country as to allow the general public to have an opportunity of knowing what the problems are and then formulating their own views.[2]

The Overall Effect

Short of changing people's firmly held convictions, mass media have had a good deal of influence on national events. The media are so fast, extensive and comprehensive that before them the size of the world has shrunk. Distance no longer stands in the way, language is no longer a barrier between peoples, and humanity oppressed in one part of the world becomes the subject of concern of all peoples, however distant they might be. International cooperation in the development of developing countries would not have been a reality but for the mass media which keep the governments and people of advanced countries informed of the conditions in developing countries.

In the life of an individual the mass media have had a pronounced effect. Television has provided a new focus of interest at home. Advertisements have given a fillip to commercial art, to the decorations in the homes and to the appearance of the furniture. Broadcasting has helped break down narrow provincialism, promote national integration, focus the nation's attention on the peculiar problems in the inaccessible border areas and other isolated communities.[3]

Role of Propaganda

A significant role that mass communication can play is in its propaganda aspect. Propaganda need not always mean something undesirable or sinister. It only means the application, scientifically, of mass media to spread a particular point of view, an ideology or an objective or a programme among the people with a view to informing them, educating them, or changing their approach or outlook.

MASS COMMUNICATION IN INDIA

Mass communication, as understood today, is relatively a recent phenomenon in India. The need for communication with the people through different media has assumed great importance. Mass media in India have made significant

[2] *Ibid.*, pp. 110–111.
[3] *Ibid.*, p. 114.

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strides since independence. They have played an important role in disseminating information and ideas and in providing instructions and entertainment to our people in a purposeful and effective manner.[4]

Media of Mass Communication

In India the available media of mass communication are of two types: those using modern means and those known as traditional media. The following may be specified among the modern media: (i) print—printed word, pictures, etc., which appeal to the sense of sight (newspapers, periodicals, publications, advertisements, etc.); (ii) radio—sense of sound; and (iii) audio-visual—appealing to both visual and auditory sense of sound (TV and films). Among the traditional media are: (i) puppetry, folk dance, folklore, community singing, rural theatre, etc.; and (ii) oral communications—public meetings, group discussions, individual contacts, etc. The outdoor media—printed word and visuals (posters, cinema slides, hoardings, neon signs, etc.)—also play an important role in making communications easy.

Role of Press

A democratic society lives and grows by free and open public discussion. In order to enable the people to form their judgement on various issues, they must have access to all shades of opinion. There can be no single voice of the press in a free society. It is, therefore, not surprising that there is a variety of ownership and opinion, and different newspapers and magazines put before the public varied and different points of view held by different political parties or groups. It is left to the people to choose their course of action. A free market place of ideas is the best shifting ground between right and wrong. The press in India has a clear objective as outlined in the Constitution. The ultimate goal of Indian society has been very clearly defined in the Directive Principles. This is to secure and protect a social order in which "justice—social, economic and political" shall inform all the institutions of national life (Art. 38). This goal was more explicitly defined later by the 42nd Amendment to the Constitution by which the Preamble was amended to describe the Indian State as a "Sovereign, Socialist, Secular, Democratic Republic" in place of "Sovereign Democratic Republic". The Preamble and the Directive Principles set out the kind of society which the country is seeking to achieve. Without the background of such social philosophy, it would not be possible for a journalist to correlate and interpret the multitudinous variety of events that take place every hour. The press in India has also a special responsibility. It has to function as an extra-parliamentary opposition to strengthen the roots of democracy and democratic institutions and to keep the government in check. It has to guard against the

[4] D. S. Mehta, *Mass Communication and Journalism in India*, Bombay, Allied Publishers, 1979, p. 226.

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erosion of democratic values and create a vocal public opinion for realising the goal of social and economic justice.[5]

Freedom of Press

In our democratic society, pride of place has been given to freedom of speech and expression which is the mother of all liberties. One of the main objectives of the Constitution, as envisaged in the Preamble, is to secure liberty of thought and expression to all the citizens. In order to give effect to this objective, "freedom of speech and expression" has been guaranteed as a fundamental right under article 19(1)(a) subject only to restrictions which may be imposed by the State under clause (2) of that article. The relevant portions of article 19 read as follows:

> 19(1) All citizens shall have the right (a) to freedom of speech and expression;
> (2) Nothing in sub-clause (a) of clause (1) shall affect the operation of any existing law, or prevent the State from making any law, insofar as such law imposes reasonable restrictions on the exercise of the right conferred by the said sub-clause in the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality, or in relation to contempt of court, defamation or incitement to an offence.

There is no separate provision in our Constitution guaranteeing freedom of the press as in countries like the USA. Freedom of expression is a term of much wider import and includes all possible forms of expressing thoughts, feelings and convictions. Such expression may be made by writing, printing, picture or by any other manner, and includes expression through the press.

As there is no separate guarantee of freedom of the press in India, certain consequences flow. Since freedom of the press is derived from article 19(1)(a) which is guaranteed to all citizens, the press stands on no higher footing than any other citizen, and cannot claim any privileges as such as distinct from those of any other citizen.[6] Conversely, the press cannot be subjected to any special restrictions which could not be imposed on private citizens. Secondly, since the guarantee under article 19(1)(a) is confined to citizens, a non-citizen running a newspaper is not entitled to the benefit of the liberty of the press.

Constitutional Remedies to Enforce Freedom of the Press

Since freedom of the press is a fundamental right, it is available to citizens and against State action only. If freedom of the press is interfered with by a private citizen, there is no constitutional remedy against such interference, though the press may have a remedy under ordinary law of the land. But if a person is aggrieved by an infringement of this right by any law or by an executive order of the government, he may apply for relief to the Supreme Court under article

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[5] R. C. S. Sarkar: *The Press in India*, New Delhi, S. Chand and Co., 1984, p. 4.
[6] See *Constituent Assembly Debates*, Vol. VII, p. 780, date December 2, 1948.

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32 or to a High Court, having jurisdiction, under article 226. Thus the printer, publisher or editor of a newspaper may file a writ petition to quash an order which imposes a ban on the entry of their journal in a State or other local area or which requires it to submit its issues on particular matters for the scrutiny of the governm. t. In such a petition, the petitioner may also challenge the constitutional validity of the Act or rule under which the impugned order was issued or even the administrative policy, the implementation of which violates the fundamental right.

The freedom of the press covers both content and circulation, because the one without the other is meaningless in practice. The Constitution does not permit placing any restriction on this freedom except to the extent permissible under a law falling within clause (2) of article 19.[7] This is a valuable freedom to maintain the democratic structure of our Constitution and it must be jealously guarded. This freedom, in its widest amplitude, is essential to each side. It is the function of the press to disseminate correct news and spread the truth and also facts about the truth. To enable it to do so, it should have access to all sources of information. Unless the information it gathers is authentic, the news it disseminates will get distorted and it cannot properly explain the facts about the truth. Freedom to have access to public records is an impc ınt aspect of freedom of the press. While openness is essential to the functioning of a democratic society, secrecy is also necessary in certain vital matters.[8]

Freedom of the Press not Absolute

In a modern State, there cannot be absolute rights. Freedom of the press as derived from freedom of expression under article 19(1)(a) of the Constitution is not an absolute or unfettered right. It is subject to restrictions under clause (2) of article 19. As the press is also an industry and a business, limitations may be placed on it under clause (6) of article 19 also. The right to freedom of press may also be suspended during an Emergency. Laws have been enacted to regulate the press. There is also executive control over the press. Freedom of the press is also subject to privileges of Parliament and State legislatures.

Restrictions under Clause (2) of Article 19

As stated earlier, clause (2) of article 19 specifies the limitations on the freedom of speech and expression guaranteed under article 19(1)(a). The Constitution empowers the State to make law imposing reasonable restrictions on the exercise of the right of freedom of speech and expression in the interest of eight matters, namely, (i) sovereignty and integrity of India: (ii) security of the State; (iii) friendly relations with foreign States; (iv) public order; (v) decency or morality; (vi) contempt of court; (vii) defamation; and (viii) incitement to an

[7] D. D. Basu: *Commentary on the Constitution of India*, 6th edn., Vol. C, Calcutta, S. C. Sarkar 1977, p. 5.

[8] Sarkar, *op. cit.*, pp. 10–11.

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offence. As eight restrictions have been specifically mentioned in clause (2) of article 19, the courts cannot enlarge them. No new restrictions can be imposed by the State except by an amendment of the Constitution. The result is that any restriction imposed on freedom of the press becomes invalid unless it is related to any of the grounds mentioned in clause (2).

Restrictions under Clause (6) of Article 19

The press has a dual role. It is not only a medium of expression but is also an industry carrying on business with profit motive. The right to carry on any business has been conferred on citizens under article 19(1)(g) but reasonable restrictions can be placed on this right under clause (6) in the interests of the general public. These are permissible restrictions under the Constitution and the press cannot complain. But in regulating the economic and business aspects of a newspaper, the State cannot impose restrictions which would affect freedom of expression guaranteed to the press under article 19(1)(a) by curtailing its circulation or freedom of discussion.

LAWS REGARDING PRESS

Freedom guaranteed to the press has certain inherent dangers, if it does not function with a sense of social responsibility. It may do incalculable harm and cause mischief by abusing its powers. Powerful parties, financial groups or big industrial houses seek to control the press to further their private interests to the detriment of the public. "Moreover, goaded by commercial motive to earn profit, many newspapers indulge in stunts to pander to the vulgar instincts of human beings, such as blackmailing, yellow journalism, horror comics, veiled pornography and the like."[9] Apart from constitutional restraints, there are laws in our country relating to the press which seek to put statutory curbs on freedom of the press. A distinction has to be made between press laws which are special laws solely directed against the press and laws on the press which are general laws applicable to all citizens including the press.

Press Laws

Some of the important laws on the press which are of general application and affect the press also are discussed below:

Official Secrets Act, 1923

Section 3(c) of the Official Secrets Act, 1923 makes it an offence if any person for any purpose prejudicial to public safety and the interest of State obtains, collects, records or publishes or communicates to any other person any sketch, plan, model, article or note or document or information which is calculated to

[9] *Ibid.*, p. 68.

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be or might be or is intended to be directly or indirectly useful to an enemy, and he shall be punishable with imprisonment for a term which may extend to 14 years. In like manner, under Sec. 5, it is an offence if any person discloses any such information in his possession.

The Press and Registration of Books Act, 1867

The Press and Registration of Books Act, 1867 is merely a procedural law and a regulatory measure and it is not intended to put any restrictions on freedom of the press or to establish governmental control over newspapers. It is an Act for the regulation of printing presses and newspapers, for the preservation of copies of books and newspapers in India and for the registration of such books and newspapers.

Indian Telegraph Act, 1885

Section 5(2) of Indian Telegraph Act, 1885 empowers the government or an authorised officer to intercept, detain or withhold any telegraphic message. Provisions of Section 5(2) read as follows:

> On the occurrence of any public emergency or in the interest of public safety, the Central Government or a State Government or any officer specially authorised in this behalf by the Central Government or a State Government, may, if satisfied that it is necessary or expedient so to do in the interest of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States or public order or for preventing incitement to the commission of an offence, for reasons to be recorded in writing, by order, direct that any message or class of messages to or from any person or class of persons, or relating to any particular subject, brought for transmission by or transmitted, or received by any telegraph, shall not be transmitted, or shall be intercepted or detained, or shall be disclosed to the Government making the order or an officer thereof mentioned in the Order.

The Young Persons (Harmful Publications) Act, 1956

Section 3 of Young Persons (Harmful Publications) Act, 1956 provides penalties where such harmful publication is advertised, sold, distributed or possessed. Section 4 empowers the State Government, in the manner described therein that every copy of such harmful publication shall be forfeited. Section 6 of the Act confers on a police officer power to seize and destroy harmful publications.

The Delivery of Books and Newspapers (Public Libraries) Act, 1954

Section 3A of the Delivery of Books and Newspapers (Public Libraries) Act, 1954 enjoins upon the publisher of every newspaper to deliver, at his own expense one copy of each issue of such newspaper as soon as it is published, to such public libraries as may be notified by the Central Government. Contravention of any provision of this Act becomes punishable with fine up to rupees fifty.

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The Police (Incitement to Disaffection) Act, 1922

The Police (Incitement to Disaffection) Act, 1922 penalises any act which causes or is likely to cause disaffection towards the Government, among the members of a police force or which induces or attempts to induce any member of a police force to withhold his services or to commit a breach of discipline.

The Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954

This Act is intended to control advertisement of certain drugs and prohibit the advertisement of remedies alleged to possess magic qualities.

Indian Penal Code, 1860 and Cr. P.C. 1973

In addition to above mentioned laws applying restrictions to erring newspapers, these Codes also contain certain provisions which provide for punishment of a person who commits such offence by printing, publishing, or circulating an objectionable matter.

In the Indian Penal Code, Secs. 121–121A (Abetment or Conspiracy to wage war against the Government of India); S. 124A (sedition, that is to incite disaffection against the Government established by law in India, by words which have a tendency to create public disorder); and S. 131 (inciting or abetting mutiny or seduction from duty of a member of the armed forces) are intended to protect security of the State.

Customs Act, 1962

Section 11 of the Customs Act, 1962 empowers the Central Government to prohibit the import or export, *inter alia*, of documents which are prejudicial to the security of India, the maintenance of public order and standards of decency or morality.[10]

PARLIAMENT AND THE PRESS

A free press and strong public opinion are indispensable to a parliamentary democracy. People must know what their representatives in Parliament are doing and Parliament also, while deciding public policies, should know the trend of public opinion. The press provides the necessary link between the Government, Parliament and the Public. It is through the press that Parliament enjoys so much publicity and it is through the press that Parliament gathers information which helps it to supervise and control the executive effectively. The press is often called an extension of Parliament. Most of the raw material for parliamentary questions, motions and debates comes from the daily press and this is an important tool on which a member often relies. In fact, it is

[10] Basu, *op. cit.*, p. 125.

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generally the press that provides the background needed to bring the work of Parliament in tune with the demands of time.[11]

The relation between Parliament and the press is of paramount national importance. It is, therefore, necessary to consider the right of the press and the limitations imposed on it by the privileges of Parliament. Articles 105 and 194 of the Constitution deal with the powers, privileges and immunities of Parliament and its members and of the State legislatures and their members respectively.[12]

Clauses 1 and 2 of article 105 confer freedom of speech in Parliament and gives complete immunity to a member of Parliament from any action in any court in respect of anything said or done in Parliament or any committee thereof. Freedom of speech in Parliament is not subject to article 19(1)(a) but is subject only to the provisions of the Constitution which regulate the procedure of Parliament such as article 118 or article 121. In regard to the publication of proceedings of House, immunity has been given only when the publication is made by or under the authority of the House.

Parliament, *inter alia*, enjoys the following powers which impinge upon freedom of press. These are (i) right to exclude strangers from Parliament; (ii) the right to prohibit the publication of its proceedings by a newspaper; and (iii) the right to punish breaches of privileges and for contempt.[13] However, constitutional protection has been given to the publication in newspapers or broadcasts by wireless telegraphy of substantially true reports of any proceedings of either House of Parliament, unless the publication is proved to have been made with malice.[14]

Normally, no restrictions are imposed on reporting the proceedings of the House. But when debates or proceedings of the House or of its committees are reported *mala fide* or there is wilful misrepresentation or suppression of speeches of particular members, it is a breach of privilege and contempt of the House and the offender is liable to punishment. Further, the press is forbidden to publish any part of the proceedings or evidence given before, or any document presented to, a parliamentary committee before such proceedings or evidence or document has been reported to the House. It is also incumbent on the press not to disclose the proceedings or decisions of a secret sitting of the House, until the ban on secrecy is lifted by the House. Any such publication or disclosure is treated as a gross breach of privilege of the House. Similarly, publication of such portions of the debates as have been expunged from the proceedings of the House by order of the Speaker is a breach of privilege and contempt of the House, and accordingly punishable.[15]

The Parliamentary Proceedings (Protection of Publication) Act, was enacted

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[11] M. N. Kaul and S. L. Shakdher, *Practice and Procedure of Parliament*, 3rd edn., Vol. II, New Delhi, Metropolitan, 1978, p. 925.

[12] H. C. Dholakia: 'Parliamentary Privileges and Freedom of Speech' in S. L. Shakdher, ed. *The Constitution and the Parliament in India*, New Delhi, National Publishing House, 1976, p. 475.

[13] Sarkar, *op. cit.*, p. 149.

[14] Art. 361A.

[15] Kaul and Shakdher: *op. cit.*, pp. 927–28.

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in 1956. Under this Act, no liability, civil or criminal, should be attached to publication in a newspaper of a substantially true report of any proceedings of either House of Parliament, unless it was proved to have been made with malice. If the publication was for public good, then, too, it was protected. This Act was repealed vide the Parliamentary Proceedings (Protection of Publication) Repeal Act, 1976. The privilege was, however, restored to the press by the enactment of the Parliamentary Proceedings (Protection of Publication) Act, 1977 in April 1977.[16] Now the law on this point has been incorporated in the Constitution itself by a new article 361A which has been inserted by the 44th Amendment Act, 1978. The protection conferred by this article extends to news agency reports containing material for publication in a newspaper. It should be mentioned, however, that while the Parliamentary Act as also article 361A of the Constitution give protection to newspapers from civil and criminal proceedings in a court of law, they do not give protection to a newspaper from punishment by Parliament for breach of its privilege.[17]

MINISTRY OF INFORMATION AND BROADCASTING

Objective

The objective of the Ministry of Information & Broadcasting in the Central Government, is to inform, educate as well as entertain with a view to creating awareness among the people about the nation's potentials for development and its problems, widening their horizon, and soliciting their participation in the implementation of the policies, plans and programmes of the Government for bringing about economic development and social change, achieving national security and promoting national integration. In short, the Ministry provides, through its media units, a live audio-visual link between the people and the Government.

Organisational Set-up

In a country of India's size and population, diversity of religions, languages, regional imbalances and several other such factors are bound to give rise to new demands and expectations in the process of overall development. In this context, the media have to provide liaison with the Government and other organisations working in the field of information and publicity. The Ministry's mass communication set-up includes regional and branch offices as well as mobile units spread all over the country.

The media units under the Ministry are Akashvani, Doordarshan, Press Information Bureau, Publications Division, Research and Reference Division, Directorate of Advertising and Visual Publicity, Registrar of Newspapers for India, Directorate of Field Publicity, Photo Division, Song and Drama Division,

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[16] *Ibid.*

[17] Sarkar, *op. cit.*, p. 157.

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Films Division, Central Board of Film Certification and National Film Archives of India. The National Film Development Corporation, a public sector enterprise, the Indian Institute of Mass Communication, the Children's Film Society and the Film and Television Institute of India, which are registered societies are also under the administrative control of the Ministry. All these constitute the information set-up of the Government. Each media unit plays a distinct role. Guidelines and policy formulations are provided by the Ministry which co-ordinates their activities and catalyses the process of implementation of policies and programmes.

Plan Outlays for Schemes in Various Sectors

The Sixth and Seventh Plan outlays for schemes in relation to information and broadcasting are shown in Table 9.1.[18]

Table 9.1
Sixth and Seventh Plan Outlays for Information and Broadcasting

(Rs. in crores)

Sl. No.	*Sector*	*6th Plan outlay*	*7th Plan outlay*
I.	Sound Broadcasting	122.38	700.00
II.	Television	86.95	700.00
III.	Information & Publicity (including Films)		
	(a) Centre	31.00	71.51
	(b) States	28.46	90.84
	(c) Union Territories	3.55	7.06
		272.34	1569.41

The plan outlay for 1989–90 of the Ministry of Information and Broadcasting is Rs. 398 crore. Media-wise break-up of the outlay is shown in Table 9.2.[19]

Table 9.2
1989–90 Outlay for Ministry of Information and Broadcasting

(Rs. in crores)

Doordarshan	189.50
All India Radio	189.50
Information Media	6.71
Film Media	12.29
	398.00

[18] Government of India, Planning Commission, *Seventh Five-Year Plan*, Vol. II, Ch. IX, Part 9.62.

[19] Government of India, Ministry of Information and Broadcasting, *Annual Report*, 1988–89, p. 9.

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Electronic Media

Akashvani: All India Radio

As in many other countries of the world, broadcasting in India began in the twenties by the efforts of amateurs followed by private enterprise. Organised broadcasting in India is said to have begun with the inauguration of the Bombay station on July 23, 1927 under Indian Broadcasting Company (IBC). The broadcasting in India came under direct control of the government after the IBC was liquidated in 1930. However, the government set up the 'Indian Broadcasting Service' which was developed and organised into what came to be known as All India Radio (AIR) on June 8, 1936. Broadcasting could not become a mass medium because it was being organised, planned and run by an alien government having least regard for national aspiration and little knowledge of popular feelings.

Post-Indepe

A massive transformation of an alien set-up, reorientation of outlook and shift in the emphasis of values took place after India became independent. With the tremendous expansion of radio network, it has become one of the major sources of information and entertainment for the majority of the people—both rural and urban. The post-independence period saw the development of broadcasting, unfettered by the inhibitions of the earlier period, into a national service for the good of the nation. When the Constitution of India was enforced, broadcasting was placed in the Union List of Seventh Schedule. A country-wide survey was undertaken to study the nature of terrain, concentration and distribution of linguistic and ethnic groups, so as to decide the location of transmitters, relay stations and studios, etc., so that indigenous forms of entertainment could be provided to people having different cultures and traditions.

Plan Allocation

The Government's interest and concern for massive growth has been reflected in plan allocation to broadcasting during successive Five-Year Plans. The First Plan (1951–56) provided a sum of Rs. 494 lakh for broadcasting; the Second Plan (1956–61) Rs. 800 lakh; the Third Plan (1961–66) Rs. 1,400 lakh; the Fourth Plan (1969–74) Rs. 6,800 lakh of which Rs. 4,510 lakh was for sound radio,[20] the Fifth Plan (1974–79) Rs. 3,763 lakh, and the Sixth Plan (1980–85) Rs. 122.80 crore.

AIR's Sixth Five-Year Plan, covering the years 1980–85, had four broad objectives:

- Consolidation and expansion of the existing regional services;
- Strengthening of the external services;
- Development of a dedicated national broadcasting channel;
- Introduction of local broadcasting.

[20] Ministry of Information and Broadcasting, Publications Division: *Mass Media in India* (1979–80), p. 34.

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AIR's Seventh Five-Year Plan

The first task of AIR during the Seventh Plan is to complete all the spill over schemes like 1000 kW medium wave transmitter at Nagpur, 250 kW short wave transmitters at Aligarh and 500 kW short wave transmitters at Bangalore. The main thrust is to maximise the day-time coverage by providing new radio stations in uncovered pockets and to take necessary steps to compensate for the night-time shrinkage that takes place as a result of interference from the high power transmitters of neighbouring countries. Special emphasis in this regard is being given to border, tribal and backward areas. Owing to the megawatt race in the neighbouring countries, there is tremendous erosion of the power of our medium wave transmitters. The technology of FM will circumvent this problem of medium wave shrinkage and during the Seventh Plan a large number of FM transmitters will be installed. Other schemes are consolidation of regional shortwave support service, utilisation of more FM service for local radio in the country, upgradation of power of medium wave transmitters; strengthening and consolidation of External Service Transmitters; replacement and modernisation of obsolete equipment; expansion of radio networking through INSAT; uninterrupted broadcast for the North-Eastern region, providing alternative power supply; science and technology; software schemes, etc.

A total provision of Rs. 700 crore has been made for sound broadcasting including Rs. 86 crore for spill over schemes; Rs. 97 crore for modernisation and renewal of existing equipment in the network and the rest for new schemes.[21]

Review of Plan Performance in 1988–89

The Annual Plan outlay of All India Radio for 1988–89 was Rs. 159 crore. Permanent studios at Bhagalpur and Cuddapah; 10 kW mobile transmitter at Tezui; second unit of 2 × 10 kW MW transmitter at Tura; 1000 kW transmitter at Nagpur; 10 kW MW transmitter at Calcutta; and a new radio station at Keonjhar were commissioned during 1988–89. Another notable development of the year was the launching of a National Channel in addition to the existing *Vividh Bharati* and local or regional services. Further, works of 100 kW MW transmitters for Bombay 'A' and Bombay 'B' and Vijayawada and 10 kW SW transmitter at Port Blair and new radio stations at Agra and Jamshedpur were completed and were ready for commission. Besides the following projects were to be completed by the end of the year 1988–89. They were 2 × 100 kW transmitters at Ahmedabad and Bangalore; 100 kW MW transmitter at Patna; 50 kW SW transmitters at Shillong, Srinagar and Gorakhpur; 4 × 50 kW SW transmitters at Delhi; 2 × 500, kW SW transmitters at Bangalore and nine local radio stations.[22]

At the end of the year 1988–89 the network of All India Radio consisted of

[21] *Seventh Five-Year Plan*, *op. cit.*, Vol. II, Ch. IX, para. 9.48.
[22] I&B, *Annual Report* 1988–89, *op. cit.*, p. 8.

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96 radio stations with 137 MW, 35 SW and 4 VHF-FM transmitters.[23] With the completion of the schemes in the Seventh Plan the network will have 205 broadcasting stations covering 97.5 per cent of India's population and 91 per cent of its area.[24]

Annual Plan for 1989–90

The Annual Plan outlay of All India Radio for 1989–90 is Rs. 189.50 crore. Some of the major targets for the year include the setting of five new FM stations, 43 local FM stations, 300 kW MW transmitters at Jammu, Suratgarh and Jalandhar, 2 × 10 kW MW transmitters at Bangalore, Jabalpur and Ahmedabad, 100 kW MW transmitters at Varanasi, Vijayawada, Calcutta and Jeypore, 2 × 10 kW MW transmitter at Madras, 10 kW MW transmitters at Tezui, Passighat and Bhopal. In addition to the above items, installation works will be taken up for the establishment of type IV(R) studios at Pune, type I(R) studios at Kokrajhar and permanent studios at Chandigarh.[25]

Computer Facilities

Microcomputer was installed in March, 1980. Since then it is being extensively used for most of the scientific and many of the managerial functions, accounting, budgeting, inventory control, etc.

UNDP-Aided Project

Under the 'Country Programme-III', for the period 1985–90, a project on 'Application of Digital Technology to Broadcasting in India', has been approved by the United Nations. UNDP funds to the tune of approx. US $350,000 have been allocated and an equal amount (approx. Rs. 60 lakh) has been approved by the Government in the Seventh Plan. The aim of this project is to establish a 'Centre for Digital Techniques in Broadcasting' in the Research Department of All India Radio and to develop competence in the digital based project for broadcast needs in India.

Indian Broadcasting (Programme) Service

The Government have taken a decision in principle to set up a new group 'A' service, called the Indian Broadcasting (Programme) Service. The new service will have separate cadres for AIR and Doordarshan and separate sub-cadres within, to meet the needs of programme management and programme production functions. The proposed service is expected to offer scope for individual officers to achieve specialisation according to their preferences and aptitudes for particular disciplines.[26]

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[23] *Ibid.*, p. 15.
[24] *Ibid.*, p. 16.
[25] *Ibid.*, p. 10.
[26] I&B, *Annual Report* 1985–86, *op. cit.*, Ch. IV, pp. 17–24.

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AIR Code

A nine-point code for individual broadcasters was placed before Parliament in 1967. According to the code, broadcasting on All India Radio by individuals will not permit:

- criticism of friendly countries;
- attack on religions or communities;
- anything obscene or defamatory;
- incitement to violence or anything against maintenance of law and order;
- anything amounting to contempt of court;
- aspersion against the integrity of the President, Governors and Judiciary;
- attack on a political party by name;
- hostile criticism of any State or the Centre; and
- anything showing disrespect to the Constitution or advocating change in the Constitution by violent means (but advocating changes in a constitutional way should not be debarred).

While Station Directors would have powers to refuse a broadcast which does not respect the code, a dispute involving a Minister of the State Government has to be referred to the Minister for Information and Broadcasting for final decision. The code does not apply to news bulletins.[27]

Doordarshan

Television was launched in India with the inauguration of the first experimental centre on September 15, 1959, by the then President Dr. Rajendra Prasad in a small studio in Akashvani Bhavan, New Delhi. India introduced TV as an aid to social education and development and as an instrument for social change. In October, 1961 regular school TV programmes for secondary schools were started. From August 15, 1965 a daily service of one-hour duration was started. In 1967 programmes on agriculture and allied subjects of interest to farmers were introduced.

Until March 1976, TV as an organisation functioned as a part of the Directorate-General, All India Radio. On April 1, 1976, an independent directorate was set up for Doordarshan so as to give a greater momentum to the efforts for the development and expansion of television service in India. Keeping the dimension and nature of audience in view, the programmes have been diversified. They include news, current affairs, music and dance, film-based education and science programmes, light entertainment programmes and programmes for special audiences like rural people, youth, children, women and students.

TV commercials were introduced on January 1, 1976 and are now being telecast from several centres. Sponsored programmes have also been introduced.

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[27] V. L. Baruah, *This is All India Radio*, Publications Division, Ministry of Information and Broadcasting, Government of India, 1983, p. 16.

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The revenue from commercials has continued to increase over the years. From Rs. 15.89 crore in 1982–83 it reached Rs. 31.43 crore in 1984–85. In 1987–88 the gross revenue realised was Rs. 136.29 crore and the amount realised during the first four months of 1988–89 was Rs. 54.14 crore.[28]

Perspective Plan, 1985–2000

This plan was formulated for expansion of Doordarshan network. It was to be executed in three phases at an estimated expenditure of Rs. 680 crore. On completion, under this plan, 50 per cent of area and about 75 per cent of the population is proposed to receive services in their own language.

Objectives of Doordarshan

The main objectives of Doordarshan are:

(a) to act as a catalyst for social change;
(b) to promote national integration;
(c) to stimulate scientific temper among the people;
(d) to disseminate the message of family planning as a means of population control and family welfare;
(e) to stimulate greater agricultural production by providing essential information and knowledge;
(f) to promote and help in the preservation of environmental and ecological balance;
(g) to highlight the need for social welfare measures including welfare of women, children and the less privileged;
(h) to promote interest in games and sports; and
(i) to stimulate appreciation of the country's artistic and cultural heritage.

TV Expansion Plan

A special TV expansion plan was approved by Government in July 1983 to instal by 1984–85 as many as 139 TV transmitters at a cost of Rs. 68 crore to cover 70 per cent of the country's population. The plan aimed at putting up relay centres with new augmented studio facilities in the production of programmes in different regional languages. It was proposed to instal TV transmitters at places with a population of more than 100,000 to ensure maximum population coverage. In addition, certain border areas, strategic areas, etc. were proposed to be covered. With the launching of the multi-purpose communication satellite (INSAT) system in 1982, it became possible for Doordarshan to telecast simultaneously for 1½ hours a common programme over all its transmitters with the object of promoting National Integration. Telecast of National Programme continues. During 1985–86, the duration of the programme was increased to 2 hours and 35 minutes.

A major plan for expansion of TV service in the North-Eastern region had

[28] L. S. Deb, USQ No. 4417, August 30, 1988.

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been approved by the Government in March 1984 with an outlay of Rs 36.43 crore. The high power transmitters in the region would put out local programmes. These as well as the low power transmitters in the region would also relay the National Programme from Delhi and common programmes from Guwahati. With the implementation of this plan, 80 per cent of the population of the region is expected to receive TV service. During 1985–86, Second Channel Service was inaugurated at Bombay. The Doordarshan Kendra, Delhi introduced on November 14, 1985, INTEXT (Teletext) service. It provides to viewers up-to-date general information as well as useful information on items like important train and flight timings, commodity and share prices, foreign exchange rates, social and cultural engagements in the city, weather, sports, etc.[29] Doordarshan has already set up viewer's panels in two cities and their findings are taken into consideration and modifications in the programme formats are made, where necessary.[30]

Doordarshan's Seventh Five-Year Plan

A three-tier service is to be introduced during the Seventh Plan period in a phased manner. A TV service for the whole country with Delhi as a main production centre drawing programmes from other production centres would be set up for projecting aspects of all India interest. Each major State will have its own primary service, originating in the State in the language of the State, to be available throughout the State. Local service will be broadcast through the local transmitters. In this direction, a satellite-derived primary (regional) service has already been introduced in Maharashtra and Andhra Pradesh through INSAT-1B. Similar service has been introduced in Tamil Nadu through all transmitters in the State for a limited duration of 17 m. Considerable progress has already been made in distributing regional TV service in the States of Punjab and Kerala through microwave linkage.[31] Programme production facilities would be provided at selected centres for local specific programmes. Replacement and modernisation of obsolete equipment by modern colour equipment is to be taken up on a priority basis. Augmentation of facilities at existing centres will consist of continuing booths, continuity studios, colour OB Vans, etc. Studio facilities with colour OB Vans and post-production facilities will be located at some of the capital cities. Electronic News Gathering/EFP vans are proposed for production of field programmes at major centres.

Regional ENG teams are to be stationed at some centres to cover important events of national and regional importance at short notice. The border areas are to be covered at selected places. New microwave links, additional end links and up links are also to be set up. A staff training institute will also be set up during the Seventh Plan to train personnel for manning the new centres.

As technological advance in the hardware sector takes place, it is imperative to enrich the contents of the programme itself. Concentrated attention will be

[29] I&B, *Annual Report*, 1985–86, *op. cit.*, Ch. I, pp. 2–4 and Ch. V, pp. 26–31.
[30] *Lok Sabha Deb*, USQ No. 1928, November 17, 1986.
[31] I&B, *Annual Report*, 1988–89, *op. cit.*, Ch. 2.

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paid to software aspect of the TV system. For this purpose, the creative talents in the field of culture, social changes, science and technology will also be drawn upon. Its aim would be to draw the local talent into programming and to inculcate among the people a scientific temper and modern outlook which provides the bedrock of national integration. Care will be taken not to project themes which may have pernicious consequences of conspicuous consumerism and lead to social divisiveness. A provision of Rs. 700 crore has been made for Doordarshan during the Seventh Plan, which includes Rs. 145 crore for spill over schemes and Rs. 71 crore for replacement and modernisation of equipment.[32]

Review of Plan Performance in 1988–89

The annual outlay of Doordarshan for the year 1988–89 was Rs. 180 crore. Out of this amount, Rs. 144.63 crore was earmarked for the implementation of new schemes included in the Seventh Plan. During the year 31 new TV transmitters were expected to be commissioned. Second channel service was introduced in Madras. 2 × 100 kW transmitters for primary channel service and a 10 kW transmitters for second channel service at Delhi started functioning with 235 M RCC tower replacing 10 kW and 1 kW transmitters respectively. A 10 kW transmitter has been commissioned at Tura. Further, construction of HPT buildings and towers were in progress at 11 places. Besides, fully equipped studios have been set up at Hyderabad and Lucknow. Works of studio centres at Kohima, Imphal and Silchar, were in progress.[33] As on February 23, 1989 there were 304 TV transmitters/transposers in the country.[34]

Annual Plan for 1989–90

Keeping in view the requirement of funds for development and expansion of TV network and implementation of new schemes of Doordarshan, an outlay of Rs. 189.50 crore has been provided for 1989–90. During this year studio centres are expected to be commissioned at Bhopal, Agartala, Tura, Dibrugarh, Silchar, Aizawl, Itanagar and Guwahati Works for studio centres at Allahabad, Vijayawada, Madras, Ranchi, Rajkot, Pune and Shimla will be commenced. During the year Doordarshan will commission 115 low power transmitters (LPT), 9 very low power transmitters (VLPT) and 23 transposers. In addition to them 10 kW high power transmitters (HPT) will be commissioned at Ambajogai, Aurangabad, Bareilly, Katihar, Gwalior, Anantpur, Dharwar, Shimoga, Bhawanipatna, Daltoganj and Raipur.[35]

Financial Autonomy of Official Media Units

In the matter of day-to-day working and operation, both these Media Units have full functional freedom and autonomy within the framework of the

[32] *Seventh Five-Year Plan*, *op. cit.*, Vol. II, Ch. IX, paras. 9.50–9.53.
[33] I&B, *Annual Report*, 1988–89, *op. cit.*, pp. 7–8.
[34] R. S. Deb, S.Q. No. 53, February 24, 1989.
[35] *Annual Report* 1988–89, *op. cit.*, p. 10.

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Government's policies and objectives and the guidelines issued. However, their budgets for the Capital and the Revenue side are provided through Annual Budgetary appropriations. A watch is kept by the Ministry through the usual methods of collecting periodical reports, of their activities and functions and holding periodical meetings with the Media Heads.

Guidelines for Official Units

The Government had circulated on July 2, 1980 the following revised guidelines for assisting the various official media units in their functioning:

1. The media units should give effective coverage to Government's programmes, policies and achievements. Particular attention should be given to programmes and dissemination of information relating to developmental activities in all their facets, including, for examples, extension work in agriculture, education, health and family welfare and science and technology.

2. The media units should devise and present suitable programmes relating to youth, including information regarding opportunities for and the generation of employment in various fields.

3. Vigorous steps should be taken by the official media units to serve the rural population, minority communities, women, children, illiterate as well as other weaker and vulnerable sections of the society.

4. Each media unit should try to encourage both individual as well as collective effort by the handicapped, such as blind, deaf, dumb and other disabled persons as well as institutions doing service to this section of society. Media units should also try to propagate the good work that is being done to eradicate diseases like leprosy and to remove inhibitions about them.

5. The media units should devise suitable programmes to eradicate social evils such as untouchability, narrow parochial attitudes and loyalties, inequalities, and exploitation. Steps taken by the Government in this regard should be highlighted.

6. Dissemination of information, news and comments in Akashvani and Doordarshan and Films Division should be done in a fair, objective and balanced manner including contrasting points of view with emphasis on events and developments. Reference to personalities may be made primarily for providing human interest.

7. The media units should adopt a professional approach in their activities. They should strive for creating audience interest and to meet their needs and expectations by talking about what is on the ground; having stories of local interest in a realistic manner by adopting actual field-based coverage. The media units should instead of limiting themselves mostly to what the Government is planning to do, identify and highlight successful examples of group and individual efforts and development activities and towards solution of local problems. Problems and issues should also be covered from the public point of view without any hesitation in bringing out healthy criticism.

8. The media units, particularly Akashvani and Doordarshan, should endeavour to put out news and features which are investigative and in-depth.

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There should be a greater attempt in diversification of coverage in terms of personalities being brought in for participation, places of origination of news, and sources being relied upon.

9. The media units should have a constant dialogue among themselves and establish effective horizontal linkages to support and supplement one another's programmes and resources.

10. Each media unit should have adequate systems for continuous evaluation and reassessment of its performance in the context of its specific objectives, resources and schedules.

Films

Films Division

The Films Division, set up in 1984 with its headquarters at Bombay, mobilises the medium of film to disseminate information on important aspects of the country's life, particularly those which touch socio-economic development and also on the vital issues like national integration, eradication of untouchability, family welfare, etc., with a view to bringing about people's participation in the affairs of the nation and also objective appreciation of facts, events and national personalities. The aims of the films produced by the Films Division for use abroad are to project an objective image of the country and secure proper appreciation of the policies of India in the foreign countries. Yet another aim of the Films Division is to promote the growth and development of the documentary films as a medium of education and communication. On an average, the Films Division produces 26 news magazines and about 140 documentary films every year.

Under the compulsory exhibition scheme, over 12,500 public cinema halls in India screen the Films Division's documentary films and news magazines in every show. It is estimated that about ten crore people see them in a week. Selected films are also shown in rural areas by the Directorate of Field Publicity. Selected films are supplied to Indian Missions abroad. The films are also telecast by the Doordarshan Kendras.

Policy for Import of Feature Films

In pursuance of the provision of the general import policy of the Government, the Ministry announced the policy for import of feature films and distribution and pricing of imported feature films on October 12, 1984. The policy authorised, for the first time, non-resident Indians to import films on payment of prescribed canalisation fee to the National Film Development Corporation. Subsequently, with a view to streamlining the procedure for import of films by non-resident Indians, this policy was amended on July 1, 1985.

Film Festivals

The Directorate of Film Festivals, which is a part of the National Film Development Corporation, a public sector undertaking under the Ministry of

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Information and Broadcasting, is entrusted with the following functions:

(a) Organisation of international film festivals in India;
(b) Participation in international film festivals abroad;
(c) Organisation of the national film festival; and
(d) Organisation of *film weeks* under the Cultural Exchange Programme in India and abroad. Activities under (c) and (d) are being carried out by the Directorate on behalf of the Government of India.

Children's Film Society of India

The Children's Film Society was set up in May 1955 as an autonomous body with the avowed objective of producing, acquiring, distributing and exhibiting films designed for children and neo-youth.

National Film Archive of India

NFAI was established in 1964 with the objectives of film acquisition, reservation, classification, documentary research, encouraging film study and spread of film culture. With its headquarters at Pune, NFAI has its regional offices at Calcutta, Bangalore and Trivandrum with a small library of film classics (Indian/foreign) to cater to the needs of film societies and film clubs in their respective regions.

Grant-in-Aid to Film Societies

As per the recommendations made by the working group on National Film Policy, the Government is operating a scheme for sanctioning grant-in-aid to the Federation of Film Societies of India, which is the apex body of more than 300 films societies that are affiliated to it. The grants are utilised by the film societies for exhibition of artistic films, dubbing and subtitling of films, purchase of projection equipment, organisation of seminars, conferences, establishment of film libraries and publication of journals on film appreciation, etc.

National Film Development Corporation

The National Film Development Corporation (NFDC) was established on April 11, 1980 with the amalgamation of the erstwhile Film Finance Corporation (FFC) and the Indian Motion Picture Export Corporation (IMPEC). It is the Central agency to promote good cinema in the country. The primary aim of the Corporation is to plan for, promote and organise the integrated development of the film industry in India. In keeping with these objectives, NFDC provides a wide range of services essential to the encouragement and development of good Indian cinema.[36]

[36] I&B, *Annual Report*, 1985–86, Ministry of Information and Broadcasting, *op. cit.*, Ch. VI, pp. 32–38.

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Press Information Bureau

The PIB acts as a link between the Government and the people. It provides information regarding policies, programmes and activities of the government to the dailies as well as to news periodicals, news agencies and radio and television organisation, both Indian and foreign. It advises government on its information policy. To perform these functions, officers of PIB are attached to all the Ministries and Departments. The PIB provides professional facilities to correspondents, cameramen and technicians accredited to the Government of India. In the Seventh Plan, PIB will introduce a computerised system of indexing and strengthening of photo and feature units and set up telephoto services at regional/branch offices.[37]

Registrar of Newspapers for India

The functions of the Office of the Registrar of Newspapers for India are two-fold, namely, statutory and non-statutory. The statutory functions include: maintenance of the register containing particulars of all newspapers published in India, keeping district magistrates informed of the availability of titles for newspapers, issuance of registration certificates in respect of newspapers and watching the regularity of newspapers, scrutiny of annual statements sent by publishers of newspapers; and verification and checking of circulation claims of newspapers.

The non-statutory functions are: to work out and authorise newsprint entitlement to individual newspapers, according to the Newsprint Allocation Policy through the State Trading Corporation of India and also to advise the State Trading Corporation of India/Newsprint Advisory Committee regarding the quantum of newsprint import needed; and to examine and certify the essentiality of printing, composing and allied machinery required by the newspapers/periodicals and communicate it to the Chief Controller of Imports and Exports for possible import.[38]

Publications Division

The Publications Division is charged with the production, sale and distribution of books, and journals on matters of national importance, for internal as well as external publicity with a view to imparting to the general public at home and abroad up-to-date and authentic information about India. The Division brings out priced books, in English, Hindi and all the major Indian languages.[39]

Directorate of Field Publicity

The Directorate of Field Publicity is the largest rural-oriented publicity set-up in the country. Operating at the grass roots level, the Directorate brings its

[37] *Ibid.*, Ch. II, p. 13, and Ch. VII, p. 39.
[38] *Ibid.*, Ch. VIII, p. 44.
[39] *Ibid.*, Ch. IX, p. 46.

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personnel and publicity material face-to-face with the masses in order to explain and interpret Government's policies and programmes and secure their involvement in development programmes, foster national cohesion and communal harmony and facilitate smooth transformation and change, especially in backward, remote and tribal areas.

Apart from publicising the basic policies of the Government, the Directorate carries out sustained campaigns on themes like national unity and communal harmony, 20-Point Programme, health and family welfare, role of public sector, status of women, increased food production, small-scale industries, prohibition, eradication of untouchability, etc.[40]

Directorate of Advertising and Visual Publicity

The Directorate of Advertising and Visual Publicity (DAVP) is one of the central agencies of the Government for publishing the policies, programmes and achievements of the Government of India through press advertising; printed publicity materials like posters, folders, brochures, booklets, wall hangers, etc.; outdoor display like hoardings; kiosks; cinema slides; wall paintings and transit advertising on buses, tram cars and railway coaches; audio-visual media such as radio and television commercials; short advertisement films and exhibitions. Besides being the advertising agency for all the Departments and Ministries (except Railways) of the Government of India, DAVP services a number of autonomous bodies and public sector undertakings. It has one of the largest direct mail services and can reach more than 15.5 lakh addresses all over the country.[41]

Photo Division

The Photo Division is the biggest production unit of its kind in the country and is responsible for preparing photographs both in colour and black and white for internal as well as external publicity on behalf of the Government of India. The main function of the Division is to photographically document the growth and social change in the country and provide visual support to communication. The Division provides photographic visuals to the media units of the Ministry of Information and Broadcasting and other Central Ministries/Departments.[42]

Song and Drama Division

The Song and Drama Division utilises a wide range of stage forms such as drama, dance-drama, mythological recital, puppet, folk and traditional plays besides the sound and light to focus the attention of the audience on important aspects of the country's life.

The song and drama programmes are effectively presented to put across the

[40] *Ibid.*, Ch. X, p. 48.
[41] *Ibid.*, Ch. XI, p. 50.
[42] *Ibid.*, Ch. XII, p. 55.

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message of national themes during festivals where large numbers of people congregate. The Division covers almost all the important fairs and festivals. The themes of communal harmony, national integration and family welfare are given special treatment on these occasions.[43]

Indian Institute of Mass Communication

The Indian Institute of Mass Communication is a premier centre for advanced training and research in communication. It was established on August 17, 1965. It is an autonomous body, receiving grant-in-aid from the Ministry of Information and Broadcasting. It is managed by a society which is reconstituted every two years. The Institute maintains close liaison with professional organisations as also with other centre of learning.

The major focus of the Institute has been on conducting orientation courses for officers of the Central Information Service, training programmes and communication research, holding seminars and workshops and contributing to the evolution of an information system relevant to India and other developing countries. Besides, it conducts post-graduate Diploma courses in Journalism, diploma courses in New Agency Journalism for non-aligned countries and post-graduate Diploma in Advertising and Public Relations.

The Institute's instructional courses cover print journalism, developmental audiovisual aids and films, radio and television, oral communication, traditional media, advertising campaign planning and communication research.

Most of the foreign participants receive scholarships from the Government of India under the International Technical and Economic Cooperation Scheme, the Colombo Plan and under the Special Commonwealth African Assistance programme. A few are sponsored under bilateral cultural exchange programmes or by the Commonwealth Secretariat.

As a premier national centre, the Institute offers consultancy services, on request, to the Central and State Government departments, and public sector undertakings, and helps in conducting training and research programmes relating to different media of mass communication. Such services are availed of also by the international organisations and foreign countries.[44]

Research and Reference Division

The Research and Reference Division provides basic information material to the Ministry, its media units and their field offices mainly in the form of "background to the news" and "reference papers" for utilisation by them for projecting the policies and programmes of the Government of India and to highlight schemes for the economic development of the country. Another notable activity of the Division is to study the trends in mass communication and to maintain a reference and documentation service on mass media.

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[43] *Ibid.*, Ch. XIII, p. 56.
[44] *Ibid.*, Ch. XV.

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The Division also issues biographical sketches of eminent Indians in various fields. Another regular service provided by the Division is the preparation of fortnightly "Diary of Events" covering important national events.

The Division compiles two annual reference books "India-Reference Annual", a standard work of reference on India and "Mass Media in India", a publication on media of mass communication in the country.[45]

The Division has a Reference Library with a good collection of books on mass media. It is also a depository of the reports of various committees and commissions. The Library is used by over 700 accredited correspondents and a large number of Government's own media men.[46]

Advertising Policy

The government has an advertising policy which is published from time to time. The advertising policy of the Government of India effective from October 1, 1980 clearly states that the primary objective of the government advertising is to secure widest possible coverage through newspapers and standard journals on science, art, literature, sports, films, cultural affairs, etc. While giving advertisements, political affiliations or editorial policies of the publications concerned are not taken into account. It further says that advertisements should not be issued to newspapers and journals which incite or tend to incite communal passions, preach violence, offend the sovereignty and integrity of India or socially accepted norms of public decency or morals. It also gives some policy guidelines and lays down that government advertisments are not intended to be a measure of financial assistance to newspapers or journals and further that some appropriate weightage or consideration may be given to:

(a) small and medium newspapers;
(b) specialised scientific and technical journals;
(c) language newspapers and journals; and
(d) newspapers and journals published especially in backward, remote and border areas.

Small, medium and big newspapers and journals have been categorised, having regard to their circulation:

(a) Small—up to a circulation of 15,000 copies per issue.
(b) Medium—circulation between 15,000 and 50,000 copies per issue.
(c) Big—circulation above 50,000 copies per issue.

News Agencies

Information, the core of all social interactions, can thrive only when there is an adequate and efficient system of information-flow within the country and also between various countries and regions of the world. A good deal of it is

[45] *Ibid.*, Ch. XIV, p. 58.
[46] I&B, *Annual Report*, 1988–89, *op. cit.*, p. 57.

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provided by News Agencies. A News Agency gathers news with the sole purpose of presenting facts and distributing it to news enterprises with a view to providing them with as complete and impartial news as possible.

There are at present four wire news agencies in India—'Press Trust of India' (PTI), 'United News of India' (UNI), 'Hindustan Samachar' and 'Samachar Bharati'. PTI and UNI disseminate news in English and the latter two provide their services mainly in Hindi.

PRESS COUNCIL

On the recommendation of the National Integration Council, the Press Council Act was passed by Parliament in 1965 and the Press Council of India was set up on July 4, 1966. The Council was reconstituted and its terms extended from time to time. The Press Council Act, 1965 was repealed by the Press Council (Repeal) Act, 1976. Subsequently, a fresh legislation providing for the establishment of a Press Council was enacted by the Press Council Act, 1978. The Act came into force on March 1, 1979 and is continuing in operation.

Composition

Under Section 5 of the Press Council Act, 1978, the Council shall comprise of 28 members, apart from a Chairman who is nominated by a Committee consisting of the Chairman of Rajya Sabha, the Speaker of the Lok Sabha and a person elected by the members of the Council. As the Council exercises certain quasi-judicial functions, it is desirable that the Chairman should be a person with judicial background. So far, all the Chairmen have been judges of the Supreme Court. Of the 28 members, 13 are working journalists, six from the management of newspapers, one each from news agencies, UGC, Bar Council of India and Sahitya Academy and five members of Parliament (three from the Lok Sabha and two from the Rajya Sabha).

Powers and Functions

To preserve the freedom of the press and to maintain and improve the standards of newspapers and news agencies, are the main aims of Press Council of India. Section 13 of the Act envisages various functions of it in the direction of attaining its objectives. The important tasks of the Council are:

(i) to build up a code of conduct for newspapers, news agencies, and journalists in accordance with high professional standards;
(ii) to help newspapers and news agencies to maintain their independence;
(iii) to ensure on the part of newspapers, news agencies and journalists the maintenance of high standards of public taste and foster a due sense of both the rights and responsibilities of citizenship.
(iv) to encourage the growth of a sense of responsibility and public service among all those engaged in the profession of journalism and also to promote a proper functional relationship among all classes of persons

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engaged in the production or publication of newspapers or in news agencies;

(v) to concern itself with developments such as concentration or other aspects of ownership of newspapers and news agencies which may affect the independence of the press;

(vi) to keep under review cases of assistance received by any newspaper or news agency in India from any foreign source.

The main function of the Council is to hold inquiry on the receipt of a complaint made to it against a newspaper or a news agency, if it has got reason to believe that any offence against the standards of journalistic ethics, or public interest or professional conduct has been committed.

In the process of inquiry principles of natural justice are strictly followed. For the purpose of holding inquiry, Council can exercise the same powers as are given to a Civil Court under the Civil Procedure Code in respect of following matters:

(a) summoning and enforcing the attendance of persons and examining them on oath;
(b) requiring the discovery and inspection of documents;
(c) receiving evidence on affidavits;
(d) requisitioning any public record or copies thereof from any court or office;
(e) issuing commissions for the examination of witnesses or documents; and
(f) any other matter which may be prescribed.

Under Section 15(3) of the Act every enquiry held by the Council shall be a judicial proceeding within the meaning of Sections 193 and 228 of IPC. It has power to warn, admonish or censure the newspaper, the news agency, the editor or the journalist, as the case may be. The decision of the Council is final and cannot be questioned in any court of law. The Council is not a court of law. Its verdicts are not judicial pronouncements. It is not empowered to impose any punishment nor can it award damages, etc. It is clear that when a newspaper chooses to be recalcitrant the Council is helpless. The public rebuke that the Council administers and the moral obligation of the offending newspaper to publish its decisions operate as both a penalty and deterrent.

Code of Journalistic Conduct

Section 13(2)(b) of the Act empowers the Council to build up a code of conduct for journalists, news agencies and newspapers in accordance with high professional standards. The Council is required to 'build up' a code and not 'frame' one. "Such a code could be built up case by case over a period of time."

The Council has been functioning for several years now. The Council acts as a buffer between the press and the public. As an adjudicating body it has heard cases against the conduct of press and against the conduct of government towards the press. Over the years the Council has grown in stature and its rebukes against newspapers and journalists have had a salutary effect.

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LABOUR AND LABOUR WELFARE

LABOUR POLICY, DEFINITION AND ITS FORMULATION

A *labour policy* usually refers to the laws and measures applicable to labour employed in organised industries. The labour policy is an ever-increasing arm of the Government dealing with problems of economic and social nature, and tasks specific to them, in accordance with the escalating demands of society and rising expectations of the people. No explicit definition has been given by the Government for it. However, one author has defined labour policy as "the intention of the State towards the affairs arising out of management of labour concerning industrial relations, working conditions, training, research and other significant problems necessitating action on the part of Government, employers or employees."[1]

We may define a labour policy as "a policy which includes all those policies, practices and procedures of the Government, whether statutory or potential, as are affected through generally recognised instruments of action that deal with the entire universe of labour-management relations, pre-employment training, and education, retraining and relocations of labour, employment information and service, medical care and health maintenance for the worker and his family, social security including pension and retirement benefits, and having the educational, cultural and recreational needs of the employees."[2]

It should be noted that the scope of a labour policy is enlargeable with changing requirements and changing circumstances. As has been rightly said, "Labour policy has been evolving in response to the specific need of industry and the working class and to suit the requirements of a planned economic development and social justice."[3]

Objectives of Labour Policy

The objective of any labour policy is to ensure an environment which is conducive to labour-management cooperation. For this purpose, the Government, being the supreme law making authority, has to play and does play a vital role in structuring or restructuring industrial relations. It tries to maintain a balance between labour and management dealings by establishing legal, social

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[1] A. K. Jain: "Labour Policy in the Five-Year Plans in India", (*Indian Labour Journal*, Vol. 21, No. 2, February, 1980) quoted in Dr. C. B. Mamoria and Dr. Satish Mamoria: *Labour—Welfare, Social Security and Industrial Peace in India,* Allahabad, Kitab Mahal, 1983, p. 338.

[2] *Ibid.*, p. 338.

[3] *Ibid.*

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and economic norms. It also endeavours to adopt the legislative and administrative organs/machinery to bring about desired changes in the social norms. In order to perform divergent yet related roles coherently and consistently, the Government needs to formulate a set of principles to guide its activities in the field of labour relations. The Government then is said to pursue a 'labour policy'.[4]

Formulation of Policy

In India, the formulation of the labour policy is mainly dependent on the deliberations and recommendations of the Indian Labour Conference, the Standing Labour Committee, the Industrial Committee, Tripartite Wage Boards and the Committee on Conventions. The deliberations and recommendations of these bodies have been the main plank for the formulation of the labour policy of the country. The participation of representatives of the working class, the employers and the Government lends the product the strength and character of a national policy.

EVOLUTION OF LABOUR POLICY IN INDIA

When the Royal Commission on Labour was set up in 1929 and its report submitted in 1931, the working class in India was neither sufficiently organised nor properly stabilised. With the poor and unsatisfactory housing conditions, sunk in indebtedness, the industrial factory workers lived in an environment which was favourable to a revolutionary outburst in the form of strikes and lockouts resulting in strained relations between the employers and employees. In view of such conditions, the Commission recommended, among other things, trade unions' right to negotiation, setting up of Labour Welfare Officer, Wage Boards, Works Committee, weekly hours of 54, maternity benefit legislation, housing facilities, permanent statutory machinery to deal with disputes, etc. The Commission's recommendations were guided by the desire to avoid the evils of early industrialisation in the West. Though nothing concrete could be done in the above respects, yet it helped much in changing the attitude towards labour. Hence, the labour policy, in the initial stages, may be said to have originated with the recommendations of this Commission.

Whatever labour legislation that existed before the Second World War was the outcome of the circumstances that developed then. A consistent and planned labour policy was, however, conspicuous by its absence. It was during the Second World War that a need was felt to improve labour conditions in order to achieve improvement in production to meet war needs. With the war coming to a close, the urgency was felt all the more for adopting a positive and determined policy with a view to securing a higher standard of living for the

[4] K. Mathur and N. R. Seth: *Tripartism in Labour Policy*, New Delhi, Sri Ram Centre for Industrial Relations, 1970, p. 1.

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workers and the continuous supply of skilled hands to India's growing industries.[5]

Another landmark in the field of labour policy was the appointment of the Labour Investigation Committee in 1944 to look into problems of wages, employment, housing risks, factory conditions, etc. The Committee reported in 1946. It recommended a code of safety to reduce accidents; State insurance against employment injury, occupational diseases, and maternity benefits; standardisation of wages, linking dearness allowance with cost of living index; recognition of trade unions and improvement in housing conditions.

With the coming into power of a national popular Government in 1946, it was realised that without satisfying the labour class, the industrial development was not possible, and hence a serious thought was given to the formulation of a national labour policy. The aim was to give labour "a fair deal consistent with the requirements of other sectors of economy". The then Ministry of Labour drew up a four-year phased programme, 1946–51, to develop basic labour standards in respect of working conditions, health, welfare and safety in industrial undertakings. This programme attempted to:

(a) revise the existing labour legislation to meet the changing needs of the time;
(b) eliminate completely and/or control contract labour;
(c) extend employment opportunities/exchanges to cover all classes of workers;
(d) evolve fair terms of service and deal for workers;
(e) fix wages in sweated industries, rationalise rates of dearness allowance to promote fair wage agreement; and
(f) lay down the nucleus for an industrial health insurance programme.

The Industrial Policy statement of 1945 had emphasised that one of the objectives of new Industrial Policy would be, "to secure for industrial workers a fair wage, decent conditions of work and living and reasonable security of tenure".[6]

In independent India, the Constitution which was enacted in 1950 ensured a decent standard of working conditions, a living wage and social security for workers.

Constitution and Labour Policy

The labour policy derives its philosophy and content from the Directive Principles of State Policy as laid down in the Constitution and has been evolving in response to the specific needs of the situation and to suit the requirements of planned economic development and social justice.[7]

As laid down in article 43, "The State shall endeavour to secure, by suitable

[5] Mamoria and Mamoria: *op. cit.*, p. 39.
[6] *Ibid.*, p. 340.
[7] Government of India, Planning Commission: *Sixth Five-Year Plan (1980–85)*, New Delhi, p. 402.

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legislation or economic organisation or in any other way, to all workers, agricultural, industrial or otherwise, work a living wage, conditions of work ensuring a decent standard of life and full enjoyment of leisure and social and cultural opportunities and . . ."

While in the early years of industrialisation, the labour policy was pre-occupied mainly with the organised sections of the labour force, growing attention is being paid to the interests of the workers in the unorganised sector without detracting from the concern of Government for the improvement of the real earnings and working conditions of those in the organised sector.

The legislative measures adopted during the last decade and a half are evidence of diversification of labour policy to progressively fulfil the Directive Principles of the Constitution. The more important of the measures taken since 1970 are the Contract Labour (Regulation and Abolition) Act, 1970 to regulate the employment of contract labour and to provide for its abolition in certain circumstances; the Bonded Labour System (Abolition) Act for the abolition of the bonded labour system and to free labourers who have incurred a bonded debt; the Beedi Workers Welfare Act to promote the welfare of persons engaged in Beedi establishments; the Acts to promote the welfare of workers in iron ore, manganese ore, limestone and dolomite mines; the Sales Promotion Employees (Conditions of Service) Act to regulate conditions of service of sales promotion employees; the Equal Remuneration Act for the payment of equal remuneration to men and women workers and for the prevention of discrimination against women in the matter of employment; and the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act;[8] the Employees, Family Pension Scheme providing for payment of family pension to the dependents of the deceased members, the Employees, Deposit Linked Insurance Scheme providing for payment of certain insurance benefit linked to provident fund accumulation in the event of the death of a member of the EPF Scheme; and the payment of Gratuity Act providing for payment of gratuity to industrial workers.

A new article 43-A was also inserted in the Constitution under the Directive Principles of State Policy to secure the participation of workers in management. The article provides that:

> The State shall take steps, by suitable legislation or in any other way, to secure the participation of workers in the management of undertakings, establishments or other organisations engaged in any industry.

LABOUR POLICY DURING THE PLAN PERIODS

First Plan

The First Five-Year Plan was drawn up in the context of the importance of industrial labour in recognition of its rights which had long remained neglected.

[8] *Ibid.*, p. 402.

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The First Plan recognised the importance of industrial labour in the fulfilment of plan targets and in creating an economic organisation in the country which would best subserve the needs of social justice. The aim was "to bring about welfare of the working class and the country's economic stability and progress".

The Plan associated certain rights and obligations with the distinctive role which the labour had to play. Among the rights were:[9]

(i) adequate provision for the basic needs of the workers in respect of food, clothing and shelter so as to enable them to remain healthy and efficient;
(ii) getting of improved health facilities and wider provision of social security;
(iii) better educational opportunities, and increased recreational and cultural facilities;
(iv) conditions of work to be such as to safeguard his health and protect him against occupational and other hazards;
(v) the right to recognise and to take lawful action in furtherance of his rights and interest; and
(vi) he should be treated with consideration by the management and should have access to impartial machinery if he fails to get a fair deal.

The Plan called upon the labour to realise the fact that in an underdeveloped economy, it cannot build for itself and the community a life except as the firm foundation of a higher level of productivity to which it has itself to make a substantial contribution.

Since the Plan recognised that "the employer-employee relationship is essentially a partnership to promote the community's economic ends, workers' right to association, organisation and collective bargaining was accepted," emphasis was, therefore, laid on internal settlement of industrial disputes through the councils consisting of the employers and employees. Where the methods failed and recourse to government intervention was unavoidable, the State would intervene and impose a settlement. It also stated that "all wage adjustments should conform to the broad principles of social policy and disparities of income should be reduced to the utmost extent, except when they are justified by differences in skill, training and experience, mental and physical requirements, etc." Emphasis was also placed on full and effective implementation of social security measures as also on the minimum wage legislation.

Second Plan

With the adoption of the policy of "Socialist Pattern of Society" in 1954, the labour policy during the Second Five-Year Plan was accordingly influenced. It was recognised that "creation of industrial democracy is a pre-requisite for the establishment of a socialist society". The Plan observed that for the development of an undertaking, industrial peace is indispensable. This can best be

[9] Mamoria and Mamoria: *op. cit.*, pp. 340–341.

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achieved by the parties themselves. Labour legislation and the enforcement machinery set up for its implementation can only provide a suitable framework in which employers and workers can function. The best solution to common problems, however, can be found by mutual agreement. Under the Industrial Disputes Act, amended in 1950, a three-tier system of Labour Court, Industrial Tribunals and National Tribunal was set up. A Code of Discipline was evolved in 1958 to reduce industrial disputes. The stress was laid on prevention of unrest by timely action at appropriate steps.

The Second Plan also emphasised workers' participation in management which was meant to give workers a sense of belonging and to stimulate their interest in higher productivity. The Plan also recognised that "the goal of progressively speeding up production would mean that indiscipline, stoppage of production and indifferent quality of work would have to be guarded against". A programme of workers' education was instituted in 1958.

The need was felt for a strong trade union movement for safeguarding the interests of labour and for realising the targets of production. Labour was to be given a fair wage, by linking the wage increase with increases in production. It was specifically stated that "earnings beyond the minimum wage should be necessarily related to results. Tripartite Wage Boards were to be set up for settling wage disputes". The Employees' State Insurance Act was extended to various new centres in the country and steps were also taken for extending medical care under the scheme to families of the insured persons.

The provision for development programmes under 'Labour and Labour Welfare' in the Second Five-Year Plan amounted to Rs. 29 crore—Rs. 18 crore at the Centre and the rest, Rs. 11 crore in the plans of states. The major schemes in this respect related to the provision of training facilities, setting up of new employment exchanges and expansion of the activities of the Employment Service Organisation. The additional activities contemplated by the Organisation were:

(a) collection of employment market information;
(b) establishment of a youth employment service;
(c) employment counselling;
(d) occupational research and analysis; and
(e) occupational testing.

It was also intended to expand the activities of the Central Labour Institute and add to it sections of industrial psychology and industrial/occupational psychology. As for welfare facilities, provision had been made by State Governments who had plans for opening new welfare centres and extending other facilities. In addition to the provision for labour welfare, the plan also provided a sum of Rs. 50 crore for industrial housing.

Third Plan

The Third Five-Year Plan emphasised the economic and social aspects of industrial peace and elaborated the concept that workers and management

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were partners in a joint venture to achieve common ends. The Plan stated that a full awareness of the obligations under the Code of Discipline had to extend to all employers and workers and it had to become a living force in day-to-day conduct of industrial relations. Ways were to be found for increasing the application of the principle of voluntary arbitration. It was essential that Works Committees were strengthened and made an active agency for the democratic administration of labour matters. Thus, the emphasis during the Third Plan was on the adoption of Codes rather than to go to courts. Trade unions were accepted as an essential part of the apparatus of industrial and economic administration.

The Third Plan followed the recommendation of the earlier plans with respect to minimum wage fixation, reduction in disparities, wage differentials, etc., but emphasised the role of productivity. It said, "No real advance in the workers' standard of living is possible without a steady increase in productivity".[10] Need base was to be used while determining wages for workers. Adequate incentives were to be provided for acquisition and development of skills and for improvements in output and quality. The Plan, in brief, apart from the fuller implementation of the schemes drawn up earlier, was intended to strengthen the social security measures.

Fourth Plan

The Fourth Plan, more or less, reiterated and re-emphasised the policy laid down in the earlier plans. It stated "Protective labour laws and voluntary arrangements such as tripartite bodies and Code of Discipline are to continue to form the basis of Labour Policy in the Fourth Plan". One of the main tasks during this Plan was to evolve practical ways in which they could make an increasing contribution to national development and national policy. The Plan observed, "Labour has a vital role in increasing production and management has to help to create conditions in which workers can make their maximum contribution towards this objective. Labour Policy and labour programmes have to be broadened steadily to provide for agricultural labour as well as for various groups of unorganised labour such as contract labour, construction workers, women workers, workers engaged in seavenging and others".

Special attention was to be given to three sets of problems during the Fourth Plan period. First, there was room for considerable improvement of the legislation which had been enacted for the protection, safety and welfare of workers. Second, important schemes like Works Committees, Joint Management Councils, workers' education had made very limited progress. It was, therefore, necessary to orient both workers and employers to these changes and find ways of meeting practical problems which had been encountered. Third, there were several directions in which execution of programmes which had a large bearing on welfare and prospects of workers had to be strengthened such

[10] *Ibid.*, p. 342.

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as workers' education, provision of facilities for imparting higher skills and training to workers, social security and labour research.

Trade unions were assigned the role of national development. Price stability was considered basic to wage policy and dearness allowance was linked with the cost of living and increases in productivity. The ESI Act was extended to cover workers earning upto Rs. 500 per month.

Among the labour legislations, the Payment of Bonus Act, 1965, Shops and Commercial Establishments Act and Labour Welfare Fund Acts in States were enacted. A National Safety Council was set up in 1966.

Fifth Plan

The Fifth Plan underlined the furtherance of the objectives set forth in the Labour Policy in the earlier plans. It stated that 'the leading role of the working class implies that eventually a high proportion of the leading technical and managerial positions in the public enterprises must be occupied by the people promoted from the rank and file. Technical and management education was to be geared to this objective. Emphasis should be laid on professionalisation of management and active association of the working class. Some unification of the trade union movement was necessary for building a socialist society. Only this way could industrial relations be put on an orderly basis through collective bargaining and other devices."[11]

The Plan further stated that "raises in wages unrelated to productivity should be avoided in the interest of price stability. A determined drive should be launched to raise labour productivity." For this the Plan envisaged "better food, nutrition and health standard, higher standards of education, and training, improvement in discipline and morale and more productive technology and management practices."

LABOUR POLICY DURING SIXTH PLAN

The Sixth Plan (1980–85) laid stress on effective implementation of the measures contemplated in the different legislative enactments and in extending the coverage of the Employees State Insurance Scheme, the Employees Provident Fund and Family Pension Scheme. Special programmes were planned to be undertaken by the State Governments for the benefit of agricultural labour, artisans, handloom weavers, fishermen, leather workers and other unorganised workers in the rural and urban areas. Workers' education programmes were to be extended and their quality improved.[12]

Young persons also face special problems in a rapidly changing society and economy where there has to be an equilibrium sought between preservation of inherited values and adjustment to changing work patterns and living

[11] *Ibid.*, p. 343.
[12] *Sixth Five-Year Plan (1980–85), op. cit.*, p. 402.

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conditions. It is necessary to have special programmes of workers' education for young persons. Cooperation is to be promoted between employers and workers through participation in management.

During the Sixth Plan, it was felt that the issues and problems of the wage policy related to the elements like need based minimum wage, protection of the real wages through compensation for rise in the cost of living, incentives for increases in productivity, allowances for hazards of occupation, wage differentials for skills, responsibilities and other justifiable reasons, essential fringe benefits, bonus and such other *ex-gratia* payments, social security arrangements like medical care, provident fund, gratuity, family pension, etc. The Plan was of the view that "the level of minimum wages should be raised in such a manner that soon the concept of a need-based minimum wage becomes a reality". Construction of a proper cost of living index and the linkage of the wages to the index by appropriate formula in all areas of wage employment are necessary for protection of the real wages.[13]

During the Sixth Plan period, the Ministry of Labour paid special attention to the review and revision and the proper enforcement of minimum wages in the agriculture sector and the rehabilitation of bonded labour. The concern of the Government of India regarding these two matters was reflected in the inclusion of these subjects in the new 20-Point Programme announced in 1981. Soon after the announcement of the 20-Point Programme, the Ministry of Labour took a number of steps to ensure the revision and enforcement of minimum wages in agriculture and for the release and rehabilitation of bonded labour. While revision and enforcement of minimum wages was reviewed in meetings of the Labour Ministers, Labour Secretaries and other tripartite forums, the rehabilitation of bonded labour was taken up under a centrally sponsored scheme and necessary guidelines framed and issued in that regard. The Ministry of Labour, during the Sixth Plan period, also initiated steps to identify different categories of unorganised rural workers and to suggest methodologies to organise them. The efforts in this direction have been two-fold. First, efforts were directed to grant the unorganised rural workers more protection under the existing legislations by improving the enforcement of these measures and secondly, to raise their awareness levels through various programmes of workers education and to prepare them to withstand exploitation in the matter of wages, conditions of work, etc.

While the impact of certain factors like the capacity to pay, productivity and profitability, consumption pattern and cost of living system of wage fixation, criteria considered in respect of wage fixation, etc., as also the heterogenous character of the economy as reflected in different regions would be felt in the wage differential disparities, it is to be recognised that the national wage policy should be based on a rational system of wages which, *inter alia*, provided for wage differentials justifiable mostly on economic criteria.

During the Sixth Plan, bonus payments and some social security benefits

[13] *Ibid.*, p. 403.

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were brought under statutory arrangements. The system of productivity linked bonus introduced recently in railways, posts and telegraphs and some departmental undertakings has the merit of the incentive element capable of application in similar area where linkage with the profits is not a possible proposition. These systems may be rationalised and refined.

Even in the organised sector, disparities exist between the more sophisticated technology industries and financial institutions on the one hand and the rest due mainly again to factors like extent and effectiveness of unionisation, higher profitability, built-in privileges and rigidities etc. Industrial harmony is indispensable for a country to make progress. Economic progress is bound up with industrial harmony for the similar reason that such harmony inevitably leads to greater cooperation between workers and management which results in better production and productivity and contributes to all round prosperity of the country.

The Sixth Plan also suggested that workers' participation in management should become an integral part of the industrial relation system. It should be made a vehicle of transforming the attitudes of both employers and workers for establishing a cooperative culture and self-reliant country with a stable industrial base. The Plan laid stress on the need of the trade unions in promoting a spirit of greater involvement of workers in the enterprise to fulfil the norms of greater efficiency. The Plan also suggested that more welfare and safety conditions should be increasingly aimed at major objectives of the Labour Policy during the Sixth Plan and its achievements were as follows:

Workers' Participation in Management

The principle of labour participation in the management affords means of self-realisation in work and meets the psychological needs of men and women at work by eliminating to a very large extent, any feeling of futility and isolation and consequent frustration that they face in a normal industrial setting. With a view to finding solution to these problems of industrialisation, it was considered necessary to establish industrial democracy in India for the ultimate creation of socialistic pattern of society. The Government policy in this regard was accordingly reiterated in the Industrial Policy Resolution (1956) in the following words:

> In a socialist democracy labour is a partner in the common task of development and should participate in it with enthusiasm. There should be joint consultations and workers and technicians should, wherever possible, be associated progressively in management.[14]

Accordingly, a scheme of Joint Management Councils was introduced in 1958. It is a voluntary scheme solely based on tripartite agreement without any legal sanction. The object of the scheme is mainly to establish cordial relations and build up understanding and mutual trust between the management and the

[14] Government of India, Ministry of Labour: *Indian Labour Year Book 1986*, pp. 109–110.

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workers, increase productivity, secure better welfare and other facilities for workers and training of workers with a view to equipping them to understand and share the responsibilities of management.

Joint Management Councils, in operation on a voluntary basis since 1958, were functioning in 80 establishments—31 in public and 49 in private sector.[15] In addition, the State Bank of India had set up a Central Consultative Committee at the Central Office and Circle Consultative Committee at each of the seven local head offices of the Bank. The Government of Gujarat has provided for the setting up of Joint Management Council under the Bombay Industrial Relations (Gujarat Amendment) Act, 1972.

The Government of India [vide Resolution No. S-61011 (4)75-DU.I, dated October 30, 1975] introduced the scheme for workers' participation in management initially in manufacturing and mining units in the public, private and cooperative sectors, as well as those run departmentally, employing 500 or more workers. The scheme having been welcomed in those sectors, the Government decision to extend its scope to commercial and service organisations like hospitals, P&T offices, railway stations, booking offices, etc. The scheme provides for shop councils at the shop/departmental level and Joint Councils at the enterprise level. A new scheme for workers' participation in management in commercial and Service Organisations in Public Sector was adopted by the Government of India in January 1977. The main functions of the councils include creation of conditions for achieving optimum efficiency, better customer service in areas where there is direct and immediate contact between the workers at the operational level and the consumer, higher productivity and elimination of pilferage and all forms of corruption and institution of rewards for this purpose.

However, the practical implementation of the scheme of workers' participation in the industry of 1975 revealed certain deficiencies. In the light of the new orientation to labour policy given by the Central Government, it become essential to have a fresh look at the existing schemes of workers' participation and devise ways in which they could lead to more effective and real participation by workers.

A committee consisting of the representatives of the central organisations of the employers and trade unions, State Governments and some professional institutions was constituted in September 1977 to study in depth all the issues relating to workers' participation in management and recommend the outline of a comprehensive scheme. The recommendations of the Committee were considered at the 31st Session of the Labour Ministers' Conference held in July 1980 and generally endorsed. However, there were differences of opinion on the question of the procedure to be adopted for the selection of workers' representatives on participative forums. A Sub-Committee of the Standing Committee of Labour Ministers considered this question but for want of unanimity the matter was left to the decision of the Government.

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[15] *Ibid.*

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The recommendations of the Committee on Workers' Participation in Management and Equity were considered by the Government and the Government have since reviewed the working of the earlier Schemes on Workers' Participation which were introduced by the Government in October 1975 and January 1977 respectively and in the light of the review and experience gained so far. The Government introduced a new comprehensive Scheme for Workers Participation in Central Public Sector Undertakings vide its Resolution No. L. 56011/1/83.D.I(B) dated December 30, 1983. The broad features of the new scheme were:

(1) The scheme would cover all central public undertakings (irrespective of the size/strength of the employees) except those which are given specific exemption by the administrative ministry/department concerned in consultation with the Department of Labour.

(2) All undertakings of the Central Government which are run departmentally will be excluded from the new scheme. This is because the Joint Consultative Machinery is supposed to exist in all such departmental undertakings which adequately ensures employees' participation in management.

(3) The scheme will be operated at both the shop-floor and plant levels. As for the board level, the administrative ministry/department concerned will draw in consultation with the Department of Labour a list of undertakings considered suitable for introduction of this scheme.

(4) Both the workers and the management shall have equal representation in the shop-floor and plant level participating forums. The management will consult the concerned trade union leaders and evolve, through consensus, the mode of representation at the participating levels.

(5) Another special feature of this scheme is that it envisages adequate representation of women in the participative forums where women workers constitute ten per cent or more of the total work force.

(6) The functions of the two participating forums would be as laid down in the scheme. Those are quite elaborate and comprehensive. These functions can be modified by mutual consensus between the workers and the management.

(7) At the board level the workers' representative(s) will participate in all the functions of the board.

(8) No legislation in this regard would be undertaken immediately. Such a step would, however, be considered after adequate experience has been gained in the working of the new scheme.

The State Governments have been requested to introduce the new scheme in their own public sector undertakings and also to encourage the private sector to implement the scheme.

The Government have set up a Tripartite Committee in the Department of Labour to monitor the implementation of the scheme and also to review its

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working from time to time. So far seven meetings of the Tripartite Committee on Workers Participation in Management have been held.

Trade Union

Trade unions in the organised sector have attained a unique status and position but the extent of unionisation has not been uniform. On the whole, it would be in the vicinity of about 30 per cent of the strength of the working force in the organised sector.[16]

The need for the trade union legislation was first felt in 1921 when the High Court of Madras granted an injunction restraining the Madras Textile Union from interfering with the business of the Buckingham and Carnatic Mill. The injunction granted by the Madras High Court went a long way in focussing public attention on the handicaps from which the workers suffered on account of the absence of freedom of association to voice grievances and to agitate for the redressal of those grievances. For the purposes of granting such freedom a bill was later introduced in the Indian Legislature which paved the way for the enactment of the Trade Unions Act, 1926.

The number of trade unions registered under the Trade Unions Act, 1926 stood at 38,935(E) in 1983 as against 4,623 in the year 1951–52 registering an increase of more than eight times. As against 65.80 lakh in the year 1973, the membership in the year 1975 stood at 65.50 lakh. During 1974, workmen accounted for 4.75 lakh or 7.7 per cent of the total membership.[17]

In the year 1984, the Industrial Disputes Act was amended and by this amendment the provisions relating to lay-off and retrenchment have been brought on the lines of the amendments to the provisions relating to the closure which are based on the judgements of the Supreme Court in Excel Wear case. This Amendment Act was brought into force with effect from August 18, 1984.

The Industrial Disputes (Amendment) Act, 1982 has also been amended so as to provide that the various sections of the Act can be notified for enforcement separately and with effect from different dates. The following provisions of the Industrial Disputes (Amendment) Act, 1982 have been brought into force with effect from August 21, 1984.

(1) Monetary criteria in the case of supervisors to be treated as workmen enhanced to Rs. 1,600.
(2) The labour courts/industrial tribunals would give orders/awards within the time specified in the order of reference which shall not exceed three months in the case of individual disputes and in the case of direct application.
(3) Where a labour court/tribunal reinstates a workman, the workman would be entitled to 100 per cent wages, even when the employer appeals against the award subject to certain conditions.

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[16] *Sixth Five-Year Plan (1980–85), op. cit.*, p. 405.
[17] Government of India, Ministry of Labour: *Indian Labour Year Book, 1983*, p. 75 and information received from the Ministry of Labour in the year 1988.

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(4) The special provisions for lay-off, retrenchment and closure extended to all industrial establishments employing 100 or more workmen instead of 300 or more.
(5) Closure provisions recast in the light of observations of the Supreme Court and appeal to the industrial tribunal against decisions have also been provided.
(6) Provision made for Unfair Labour Practices (U.L.P.) on the part of employer workman/a trade union and panel provisions provided for commission of U.L.P.

In 1984 the Industrial Disputes (Centre) Rules, 1957 have been amended to lay down a time frame for disposal of cases and applications by labour courts and tribunals.

Social Security Measures

In the field of social security, the main endeavour has been to enlarge the coverage of the existing social security schemes/laws, to effect suitable improvements within the available resources and to simplify the procedure for settlement of claims/benefits. The main provisions of the existing laws on the subject are as given below:

The Workmen's Compensation Act, 1923

This Act provides for payment of compensation to workmen and their families in case of industrial accidents and of certain occupational diseases arising out of, and in the course of employment and resulting in death or disablement. The Act is applicable to railway servants (other than those employed in administrative offices) and workers employed in certain hazardous employments such as factories, mines, plantations, construction works, farming by tractor or other contrivances driven by steam or other mechanical power or electricity etc. The Act does not, however, apply to the workers who are covered by the Employees State Insurance Act. There is no wage limit for coverage under the Act.

The minimum amount of compensation payable under the Act for death is Rs. 20,000 and for permanent disablement Rs. 24,000. The maximum amount of compensation for disablement can go upto Rs. 1,14,000, while that for death can go upto Rs. 91,000, depending on the wages and the age of the workman at the time of his death. In case of temporary disablement, compensation at the rate of 50 per cent of wages is payable for a maximum period of five years. The liability for payment of compensation under the Act is that of individual employer.

The Employees' State Insurance Act, 1948 (ESI Act)

This Act provides for medical care and treatment, cash allowance during sickness, maternity, and employment injury, pension to dependents on the death of a worker due to employment injury and funeral expenses not exceeding Rs. 500 towards expenditure on the funeral of an insured person.

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The Act which was initially applicable to non-seasonal factories using power and employing 30 or more persons, is being gradually extended to smaller factories using power and employing between 10 or more persons and factories not using power, shops, hotels, restaurants, cinemas, theatres, road motor transport and newspaper establishments employing 20 or more persons. The coverage under the Act is at present restricted to employees drawing wages not exceeding Rs. 1600 per month. As on October 31, 1987, the scheme was implemented in 555 industrial centres in the country covering about 60.03 lakh employees. The total number of beneficiaries (including family members) was 2.79 crore.

The ESI Corporation has so far commissioned 95 ESI hospitals with 18,191 beds, 42 ESI Annexes with 842 beds and 240 ESI dispensaries, for the use of insured persons and their family members. As on October 31, 1987, there were 21,200 beds (including those reserved in Government Hospitals) and 1,240 dispensaries (including those in rented building), for the use of ESI beneficiaries.

The Employees' Provident Funds and Miscellaneous Provisions Act, 1952 and the Scheme Framed thereunder

This Act provides for Provident Fund, Family Pension and Deposit Linked Insurance for the employees in factories and other establishments. The present rate of family pension (including supplementary increases) range between Rs. 146 to Rs. 650 per month, depending on the pay of the deceased member.

The Act, which initially applied to six major industries in 1952, is now applicable to 173 industries/classes of establishments employing 20 or more persons. The coverage under the Act is at present restricted to employees drawing wages not exceeding Rs. 2500 per month. As on September 30, 1987, the total number of employees covered under the Act was 1.41 crore.

The schemes framed under the Act are administered by a corporate body called the Central Board of Trustees (CBT), which has members representing Central/State Governments, employers and employees.

The Maternity Benefit Act, 1961

The Act regulates the employment of women in certain establishments for certain period before and after child birth and provides for maternity and certain other benefits; the Act applies to mines, factories, circus industry and plantations. It provides for payment of maternity benefit at the rate of average daily wages for 12 weeks in the case of delivery and 6 weeks in the case of miscarriage.

The Payment of Gratuity Act, 1972

This Act provides for payment of gratuity at the rate of 15 days wages for every completed year of service in the event of termination of employment on superannuation, retirement or resignation, or death or disablement, subject to completion of continuous service of not less than five years. The condition of

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five years, does not, however, apply in cases of death or disablement. The Act applies to every factory, mine, oilfield, plantation, port, railway company and shop or establishment in which 10 or more persons are employed. The wage limit for coverage under the Act has been raised from Rs. 1600 to 2500 per month with effect from October 1, 1987.

Welfare and Living Conditions

There are statutory welfare funds for workers in mining industry like iron ore, manganese ore, limestone, dolomite, mica, and beedi industry and for cine workers. The relevant Acts in this regard are as follows:

(a) Mica Mines Labour Welfare Fund Act, 1946;
(b) Iron Ore, Manganese Ore and Chrome Ore Mines Labour Welfare Fund Act, 1982;
(c) Limestone and Dolomite Mines Labour Welfare Fund Act, 1972;
(d) Beedi Workers Welfare Fund Act, 1976; and
(e) The Cine Workers Welfare Fund Act, 1981.

For the purpose of formulation of 'Policy and Programme' under different Welfare Fund Acts, provision has also been made for constitution of tripartite Central and State Advisory Committees. For implementation of various schemes under different Welfare Fund Acts, the country has been grouped into nine regions, viz., Allahabad, Bangalore, Bhilwara, Bhubaneswar, Calcutta, Hyderabad, Jabalpur, Nagpur and Karme. Each region is under the overall charge of a Welfare Commissioner.

For provision and development of medical care under different Welfare Funds, the following steps have been taken so far:

(a) Hospitals Six hospitals under Mica Mines Welfare Funds, four hospitals under Iron Ore, Manganese Ore and Chrome Ore Mines Labour Welfare Fund and a hospital and a chest clinic under Beedi Workers Welfare Fund have been established. Construction of a hospital under Iron Ore, Manganese Ore and Chrome Ore Mines Labour Welfare Fund is in progress and it is likely to start functioning shortly. Administrative sanction has been issued for construction of a hospital under Beedi Workers Welfare Fund in West Bengal.[18]

(b) Dispensaries Eighteen dispensaries for mica mine workers, 15 for iron ore, manganese ore and chrome ore mine workers, 36 for limestone and dolomite mine workers and 130 for beedi workers have been established. Besides, two maternity and child welfare centres, nine multi-purpose institutes for mica mine workers, 34 multi-purpose institutes for iron ore, manganese ore and chrome ore mine workers, six primary health centres and one maternity-cum-child welfare centre for iron ore, manganese ore and chrome ore mine workers and also one maternity-cum-child welfare centre for limestone and dolomite mine workers have also been established.

[18] Information received from the Ministry of Labour in the year 1988.

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For providing housing facilities to mine and beedi workers, there are four housing schemes, viz. Type-I, Type-II, Build Your Own House and Scheme for Economically Weaker Sections of beedi workers.[19] To ameliorate their living conditions, land is provided and houses constructed by State Government under the housing scheme for economically weaker sections of beedi workers. Under this scheme 2617 houses have been sanctioned and 1113 constructed so far. Administrative approval for construction of another 4000 houses at Sholapur at the rate of 1000 houses each year from 1986–87 has also been given.

A scheme to provide scholarships to the children of mine, beedi and cine workers is in operation. This scheme is applicable to those workers whose income does not exceed Rs. 1600 per month. The rates of scholarships range from Rs. 15 to Rs. 125 per month. An amount of Rs. 101.94 lakh was distributed as scholarships to children of mine and beedi workers during the year 1986–87.

For the mining pockets suffering from water scarcity, subsidy is paid at the rate of 75 per cent of the estimated/actual cost of Water Supply Scheme under Mica Mines Labour Welfare Fund. Under the other mines welfare funds assistance is given at the rate of 75 per cent to small mine owners and at the rate of 50 per cent to others.

For providing recreational facilities to workers, mobile cinema units, welfare centres, and libraries have been estabished. Besides, cultural functions, and sports tournaments are also held at regular intervals. A scheme for provision of colour/black and white TVs, etc. has also been introduced.

The nature of employment in the beedi industry makes exploitation possible. With a view to encouraging workers to form cooperative societies, financial assistance to the extent of 75 per cent of cost of construction of a workshed or godown or both or Rs. 75,000 for each, whichever is less is paid to societies having a minimum membership of 100 provided ownership of land is vested in them. So far two worksheds have been sanctioned under this scheme.

Safety and Working Conditions

Working conditions include not only wage structure, fixing of a minimum wage and protection of income, but also the fixing of working hours, periods of rest, paid holidays, provisions of canteen facilities and provision of creches for children. Today, safety includes not only protection of workers against accidents at work but also against occupational diseases. Indeed, with the growth and diversification of industry and agriculture, the safety and health of workers goes beyond mere measures of prevention. It is equally important to improve the environment since safe and healthy working conditions are the best protection for the worker and the best guarantee for increased production. Safety in industrial establishments is the concern primarily of the State Governments.

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[19] Government of India, Ministry of Labour and Rehabilitation, Department of Labour: *Annual Report 1983–84*, p. 48.

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Safety Measures in Factories

The Factories Act, 1948 contains provisions to ensure safety measures and to promote the health and welfare of workers in factories. The Act and the Rules framed thereunder are administered by the State Governments and Union territories through their factory inspectorates.

Factory Advice Service The organisation of the Directorate General, Factory Advice Service and Labour Institutes functions as an integral body to advise government, industry and other interests concerned in matters relating to safety, health and welfare of industrial workers. The Organisation, *inter alia*, deals with matters relating to (i) administration of the Factories Act; (ii) training of Factory Inspectors from the various States and also trainees from foreign countries under various Technical Aid Schemes deputed for training in industrial safety and allied subjects; (iii) industrial safety and environmental problems including health hazards in factories; and (iv) holding of the annual conferences of the Chief Inspectors of Factories of the different States and Union territories. The 36th Conference of the Chief Inspectors of Factories was held at Faridabad from October 8–14, 1987.

The Central Labour Institutes at Bombay and the Regional Labour Institutes at Calcutta, Kanpur and Madras which function under the administrative control of the Directorate General, undertook a large number of training, educational and research activities.

National Safety Council In pursuance of the recommendations of the Conference on Industrial Safety, (December 1965) and the 24th Session of the Standing Labour Committee (February 1966) the National Safety Council was set up on the March 4, 1966 as a non-commercial, non-profit making, non-political and autonomous body under the Union Ministry of Labour and Rehabilitation. The main objective of the Council is to generate, develop and sustain a movement of safety awareness at the national level. To achieve this objective, the Council conducts a variety of educational, training and promotional activities. These activities include specialised public training courses, seminars and conferences on industrial safety and health; lending safety films for being screened in the factories, conducting fire and safety surveys; providing free technical advice-cum-information service; publishing the Industrial Safety Chronicle (Quarterly), Industrial Safety News (Monthly Newsletter), technical booklets, multi-coloured safety posters, National Safety Calendar booklets, and a variety of other promotional literatures and utility articles with safety slogans.

The total membership of the Council as on March 31, 1987, was 1962.

Safety in Mines

The Directorate General of Mines Safety has been entrusted with the function of enforcing the provisions of the Mines Act, 1952 and the Rules and Regulations framed thereunder. It also enforces the Mines Rules in respect of Coal Mines, Mines Creche Rules and Maternity Benefit Rules in respect of non-coal

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mines and the Mines Vocational Training Rules in respect of all mines. They undertake regular inspections to ensure that the statutory requirements regarding safety are fully met. They also conduct investigations into all fatal accidents as well as serious accidents. These enquiries serve the dual purpose of identifying the causes and the persons responsible for the accidents and formulating remedial measures to prevent recurrence of similar mishaps.

Accidents in Coal Mines The number of fatal accidents during the year ending 1987 showed a decrease over the previous years. In 1986, there were 180 fatal accidents in which 214 persons were killed whereas in 1987, the number has decreased to 155 and 169 respectively. The figures of fatal accidents from 1981 to 1987 are given in Appendix 10.1.

Fatal Accidents in Non-coal Mines There has been a slight increase in the number of fatal accidents in non-coal mines during the year 1987. The figures of fatal accidents from 1981 to 1987 are also given in Appendix 10.1.

Vocational Training and Education

By the end of December 1987, 84 vocational training centres in coal mines and 112 centres in non-coal mines were in existence.

During the period from 1984 to 1986 and also from January to June 1987, the number of persons trained at these centres were as shown in Table 10.1.[20]

Table 10.1
Number of Persons Trained

Year	*Coal*	*Non-Coal*	*Total*
1984	1,13,332	10,000	1,23,332
1985	1,04,811	8,576	1,13,387
1986	1,23,459	12,349	1,13,808
1987*	55,380	7,332	62,712
(*upto 30–6–1987)			

Examination

The Coal Mines Regulations, 1957 provide for the grant of certificates of competency to mine manager, surveyors, overman, sirdars, shotfirers, etc. so as to ensure that only qualified persons are appointed in these capacities. Similar provisions exist in the Metalliferous Mines Regulations, 1961. The number of candidates for different examinations and the number of those who were successful between the period 1983 to 1987 are given in Appendix 10.2.

National Council for Safety in Mines (NCSM) The National Council for Safety in Mines is a registered society and its object is to convey the message of mines

[20] Information received from the Ministry of Labour in the year 1988.

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safety through publicity and propaganda, mainly with audio-visual aids to miners and to make them actively participate in all types of safety activities. It was established in July 1963.

A decision has been taken to wind up the Council because it has been felt that the organised sector in mining can undertake the work hitherto being performed by the Council whereas for unorganised sector it is proposed to strengthen Directorate General of Mines Safety with a view to enabling them to undertake the work which was being performed by the Council in respect of the unorganised sector.

Safety in Ports and Docks

The Indian Dock Labourers' Act, 1934 and the Regulations framed thereunder give effect to the ILO Convention No. 32 (Revised) concerning protection against accidents to workers employed in loading or unloading of cargo on board the ships or alongside at all the major ports. Besides, the Dock Worker (Safety, Health and Welfare) Scheme, 1961 framed under the Dock Workers (Regulations of Employment) Act, 1948 provides for measures for ensuring the health and welfare of dock workers and safety measures for those dock workers who are not covered under the Indian Dock Labourers' Regulations, 1948. These enactments are applicable to all the major ports. The Dock Workers (Safety, Health and Welfare) Act, 1986 has been enacted and enforced from April 15, 1987.

Reported accidents at the major ports from the year 1973 to 1987 are given in Table 10.2.[21]

During 1987, the Dock Safety Inspectorate at various ports organised 97 training programmes. These programmes were attended by supervisory staff and workmen of the Port Trust Organisations, Dock Labour Boards, and Food Corporation of India. Besides this, the Dock Safety Committees continued to function at all the major ports.[22]

Safety-cum-Training Centres with permanent safety exhibitions are being set up at all major ports which will help in educating and spreading safety consciousness amongst the management personnel and the workers. Five centres have already been functioning: one at Madras since 1973, the other at Calcutta since 1975 and the third at Cochin since 1977, fourth at Kandla and the fifth at Paradeep. Action is in hand to set up Safety-cum-Training Centres at the ports of Visakhapatnam, Mormugao and New Mangalore.

Safety in Railway[23]

The largest single factor responsible for accidents being human failure, the safety campaign on railways was directed as usual, towards checking the incident of human failure by education supervision, enforcement of safety instructions and engineering aids.

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[21] Department of Labour: *Annual Report 1983–84, op. cit.*, p. 74.

[22] Information received from the Ministry of Labour in 1988.

[23] *Indian Labour Year Book 1986*, op. cit., p. 177.

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Table 10.2

Accidents at the Major Ports

Year	*No. of accidents*	
	Fatal	*Non-fatal*
1	2	3
1973	15	2250
1974	18	1990
1975	21	1794
1976	19	2070
1977	22	2206
1978	19	1828
1979	21	1548
1980	11	1420
1981	32	1325
1982	28	1312
1983	13	1487
1984	11	1368
1985	11	1144
1986	13	1009
1987	16	966

Individual contact with staff by supervisors and safety counsellor as well as audio-visual safety propaganda through posters, pamphlets, cartoons, folders, films, radio-talks and tape-recorded talks were continued. Group contacts through safety meetings, seminars and safety camps were also undertaken. Side by side with the drive to educate and motivate staff, regular inspections and surprise checks by officers, inspectors and supervisors of various departments and by the safety organisations of railways were continued during the period under review. The Safety Directorate in the Railway Board's office also carried out inspections in the field.

To reduce dependence on human element, various sophisticated technological aids like ultrasonic flaw detectors for wheels, axles and rails, vigilance control devices on locomotives, track circuiting and automatic warning system are also being introduced progressively. To generate a healthy spirit of competitions, safety shields are also awarded to unit holding the best safety record. Trends of accidents are continuously kept under review and suitable remedial measures initiated on the basis of their analysis.

Rural and other Unorganised Workers

India Ratified ILO Convention No. 141

India ratified ILO Convention No. 141 concerning rural workers organisation on August 18, 1977. Since then it has been the endeavour of the Government to

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identify different categories of the unorganised rural workers to initiate and intensify series of measures for promoting organisation of rural workers, with a view to securing their involvement in the total development efforts on the one hand, and providing adequate employment and income opportunity for improving their working and living condition on the other.

Rural Workers' Cell

A Rural Workers' Cell was set up in the Ministry of Labour in 1979 to look after the work relating to rural workers. The Cell continues to coordinate the activities relating to the problems of rural workers in the country.

The Centrally Sponsored Plan Scheme for "Organising the Rural Workers"

The above scheme for organising the rural workers was initially launched in respect of 415 blocks in 8 states in 1980–81. By the year 1985–86, the scheme had been extended to 14 states and the Union territory of Pondicherry, and 1500 posts of Honorary Rural Organisers (HROs) have been allocated to them. The Haryana Government has, therefore however, discontinued the scheme from the year 1987–88.[24]

The scheme has been reviewed and it has now been dovetailed with another Centrally Sponsored Plan Scheme of the Ministry of Agriculture, Department of Rural Development; namely, Organisation of Beneficiaries Anti-Poverty Programmes (OBAPP).

The scheme aims at motivating the rural workers to organise themselves and to give them knowledge about the laws enacted for their welfare.

Sub-Committee of the Parliamentary Consultative Committee of the Ministry of Labour on Unorganised Workers in Agriculture Sector

A Sub-Committee of the Parliamentary Consultative Committee was set up for the purpose of studying and reporting on the problems of unorganised workers in agriculture sector.

To obtain firsthand information about the working and living conditions of the unorganised agriculture labour, the Sub-Committee visited Andhra Pradesh, Bihar, Madhya Pradesh, Kerala, Orissa, Tamil Nadu, West Bengal and Goa.

National Commission on Rural Labour

A National Commission on Rural Labour has been set up by the Government in August 1987 for achieving a better understanding of specific problems of rural labour at the all India as well as regional levels thereby getting an insight into issues relevant to the overall development process as well as specific rural labour oriented programmes.

[24] Information received from the Ministry of Labour in the year 1988.

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The Headquarters of the Commission are at New Delhi. The term of the Commission is for a period of three years. It may, however, submit, if necessary, interim reports.

Women at Work

Since women form an important component of the work force and since they bear a dual burden, special steps will have to be taken to promote their welfare and development. The protection extended so far relates to prohibition of employment of women in underground coal units/mines, also in certain other hazardous occupations, provision of certain welfare facilities like creches, maternity benefits and ensuring equal wages for equal work for both male and female labour. While social services like health care, education, etc., are required by all labour, male and female, the employment of female labour would call for special attention in regard to the following:[25]

(a) provision of care and education for all the children of the family;
(b) provision of opportunities for education, skill training and upgrading and advancement in order to widen areas and avenues for their employment.

The explicit expression of policy relating to women's employment was embodied for the first time in the Sixth Five-Year Plan which included a chapter on 'Women Development'.

Women's Cell The Women's Cell is responsible for the formulation of policies relating to women labour, policies, that seek to remove the disadvantages under which women work and strengthen their bargaining position, to improve their wages and working conditions, improve their skills and open up better employment opportunities for them. As part of the policy, the Ministry has passed certain laws for women workers, principal among them being the Equal Remuneration Act, 1976. The Women's Cell has been monitoring the implementation of the Equal Remuneration Act, 1976 which provides for payment of equal remuneration to men and women for the same work or work of similar nature and for prevention of discrimination on the grounds of sex against women in matters of employment. The Central Government and most of the State Governments have also appointed authorities for hearing and deciding complaints and claims of the women workers under the Equal Remuneration Act, 1976.

Central Advisory Committee The Central Advisory Committee set up under the Equal Remuneration Act was reconstituted during 1985–86, to advise the Government for the purpose of providing increasing employment opportunities for women. Such Committees have also been set up by most of the State Governments and Union territories.

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[25] *Sixth Five-Year Plan (1980–85), op. cit.*, p. 408.

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Equal Remuneration (Amendment) Act, 1987 was brought into force with effect from December 17, 1987. The Act plugs certain loopholes, removes the ambiguity in certain provisions of the original Act and makes the penalties more stringent.

To strengthen women workers in the field, improve their working conditions and increase their employment potential, the Women's Cell renders financial assistance to voluntary agencies for taking up action-oriented schemes. The Women's Cell has also projected the need for substantial outlays for the future for vital activities such as:

- Conducting studies on the decline of women's employment in certain sectors and identifying employment potential in certain others;
- Strengthening of enforcement machinery for implementing the ERA (Equal Remuneration Act, 1976) more rigorously;
- Organising the unorganised women workers including the small-scale employed and those in service sector;
- Increasing the infrastructure within the Labour Ministry so as to have a full-fledged Women Labour Division.

Child Labour

Child Labour Cell The Child Labour Cell in the Ministry of Labour is involved in the formulation, coordination and implementation of policies and programmes/schemes for improving the working conditions of children. The Cell has, during the current financial year rendered financial assistance to four voluntary organisations in the field of child labour for projects/programmes for the welfare of the working children. The projects financed by the Child Labour Cell are:

(a) A pre-vocational training-cum-education and relief centre near Aurangabad (Maharashtra) for children working in rural and agricultural occupations. The project is run by the Indian Institute of Rural Workers, Aurangabad;

(b) A project to provide formal and non-formal education, health care and nutrition to urban child workers in Calcutta. These centres are run by the Institute of Psychological and Educational Research, Calcutta and are held on Sundays and holidays;

(c) An action project for the rehabilitation of child workers in Ahmedabad. This project is being implemented by Self Employed Workmen's Association. Centres have been opened for training child workers in handloom weaving, tailoring, electric wiring, etc.;

(d) A project for the welfare of rag-picking children in Bangalore. The project is run by the Karnataka State Council for Social Welfare. The project gives non-formal education to the children and trains them in various occupations with a view to remove them from rag-picking.

National Policy on Child Labour Keeping in view the fact that legislation alone would not be sufficient to tackle the problem of child labour, the

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Government has formulated the National Policy on Child Labour which was announced in Parliament in August 1987. The Policy consists of:

(1) Legislative Action Plan–under which emphasis will be laid on the strict and effective enforcement of the provisions of the Child Labour Prohibition and Regulation Act, 1986, the Factories Act, 1948, the Mines Act, 1952 and other Acts containing provisions relating to the employment of children.
(2) The focussing of general development programmes for the benefit of child labour and their families; and
(3) A Project-based Plan of Action in areas of high concentration of child labour.

The projects envisage raising the income levels of the families of child labour, through poverty amelioration schemes; the setting up of special schools for the child workers where provision for education, vocational training supplementary nutrition, health care, etc. will be made; stepping up programmes of adult education for the parents of the working children and creating awareness regarding the undesirable aspects of child labour.

The following ten areas have been identified:

(i) The Match Industry in Sivakasi, Tamil Nadu.
(ii) The Diamond Polishing Industry in Surat, Gujarat.
(iii) The Precious Stone Polishing Industry in Jaipur, Rajasthan.
(iv) The Glass Industry in Ferozabad, Uttar Pradesh.
(v) The Brassware Industry in Moradabad, Uttar Pradesh.
(vi) The Handmade Carpet Industry in Mirzapur-Bhadohi, Uttar Pradesh.
(vii) The Lock Making Industry in Aligarh, Uttar Pradesh.
(viii) The Handmade Carpet Industry in Jammu and Kashmir.
(ix) The Slate Industry in Markapur in Andhra Pradesh.
(x) The Slate Industry in Mandsaur in Madhya Pradesh.

A project for the children working in the match industry had been started in Sivakasi, Tamil Nadu, in April 1986 prior to the formulation of the National Child Labour Policy. Steps are being taken to suitably modify this project so as to make it conform to the basic objectives of the policy. A similar project for children working in carpet weaving industry in Varanasi has been formulated. Action is also being taken to finalise the projects for the other nine areas identified in the policy.

Central Advisory Board on Child Labour The Central Advisory Board on Child Labour which was first set up in March 1981 under the Chairmanship of the Minister of Labour, was reconstituted in July 1987. The Board renders advice to the Government on various aspects of the problem of child labour. The last meeting of the Board was held on September 21, 1987.

Contract Labour

Contract Labour (Regulation and Abolition) Act, 1970 was enacted to abolish the contract labour system wherever it was possible and regulate the working

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conditions of the contract labour where it was not feasible to do so. The Act provides for the regulation of conditions of work, payment of wages and other amenities relating to welfare and health of contract labour.

Since the Act came into force, the Central Government, on the recommendations of the Central Advisory Contract Labour Board, has prohibited employment of contract labour in various operations/categories of work. (See Appendix 10.3.)

On the recommendations of the Central Advisory Contract Labour Board, the following committees have been constituted to go into the question of abolition of contract labour system including the difficulties involved.[26]

(i) Committee on contract labour system in Coal and Ash handling in Loco Sheds of the Indian Railways.
(ii) Committee to go into the question of working of contract labour system in 'Iron Ore Mines'.
(iii) Committee to go into the question of working of contract labour system in 'Manganese Mines'.
(iv) Committee to go into the question of working of contract labour system in 'Limestone and Dolomite Mines'.
(v) Committee to go into the question of abolition of contract labour system in 'Coal Washeries' in the country.

Bonded Labour

The Bonded Labour System was abolished by law throughout the country with effect from October 25, 1975 under the Bonded Labour System (Abolition) Act, 1976. The Act envisages release of all the bonded labourers from bondage and simultaneous liquidation of their debts. The 20-Point Programme 1986 stipulates:

(a) full implementation of laws abolishing bonded labour which implies (1) identification of bonded labour, (2) release of bonded labour, (3) action against offenders, (4) constitution and holding of regular meetings of the Vigilance Committees at the district and sub-divisional levels, (5) conferring of powers of Judicial Magistrates on Executive Magistrates under Section 21 of the Bonded Labour System (Abolition) Act, 1976; and (6) maintenance of the registers etc. as prescribed under rule 7 of the Bonded Labour System (Abolition) Rules 1976; and
(b) involvement of voluntary agencies in the programmes for bonded labourers.

The responsibility for identification, release and rehabilitation of bonded labourers rests with the State Governments who are implementing authorities under the Bonded Labour System (Abolition) Act 1976. The incidence of bonded labour has been reported from 12 States, viz. Andhra Pradesh, Bihar,

[26] Department of Labour: *Annual Report 1983–84*, Vol. I, pp. 59–60.

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Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh. All the bonded labourers in Kerala and Gujarat have been rehabilitated and no further bonded labourers have been detected there. According to the latest reports received upto December 31, 1987 from the State Governments, the total number of bonded labourers identified and freed was 2,21,806 out of which 1,94,604 have been rehabilitated. A statement showing the statewise position is given in Appendix 10.4.

With a view to supplementing the efforts of the State Governments, the Ministry of Labour launched a Centrally Sponsored Scheme from 1978–79 under which the State Governments are provided central financial assistance on a matching grant (50:50) basis for rehabilitation of bonded labourers. The scheme originally envisaged provision of financial assistance upto a ceiling limit of Rs. 4,000 per bonded labourer which has since been enhanced to Rs. 6,250 with effect from February 1, 1986. The rehabilitation schemes can be either land-based or animal husbandry based or skill/craft based depending upon the aptitude, skill and preference of the beneficiary.

To accelerate the pace of rehabilitation of bonded labourers, the State Governments have been allowed to delegate powers for sanction of rehabilitation scheme to the District Collectors/Divisional Commissioners by setting up a Screening Committee at the district level. The State Governments have also been requested to set up a monitoring and review committee at the State level under the chairmanship of the Chief Secretary or some other senior officer. The Committee should meet every quarter to monitor and review the identification, release and rehabilitation of bonded labour.

During the financial year 1987–88, the Ministry of Programme Implementation, in consultation with the State Governments, has fixed a target for rehabilitation of 18,202 bonded labourers in respect of nine States viz., Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh. As against this, the State Governments have reported rehabilitation of 10,273 bonded labourers during the period from April to December 1987.

An outlay of Rs. 15.00 crore has been provided for the Centrally Sponsored Scheme in the Seventh Plan. An amount of Rs. 255.60 lakh (representing the Central share of assistance) has been provided for the Annual Plan 1987–88.

Senior officers from the Ministry of Labour are deputed to different States to conduct on-the-spot review of the measures taken by the State Governments for identification, release and rehabilitation of bonded labourers. The results of these reviews are communicated to State Governments for necessary action.

Involvement of Voluntary Agencies in the Identification and Rehabilitation of Bonded Labour As envisaged in the 20-Point Programme, 1986, a new Plan Scheme "Grant-in-aid to Voluntary Agencies in the Identification and Rehabilitation of Bonded Labourers" has been formulated this year. The modalities and guidelines for implementation of the scheme have been circulated to all State Governments and Union territories. A sum of Rs. 1.00 crore and Rs. 20.00 lakh

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have been provided for the scheme during the Seventh Five-Year Plan (1985–90) and Annual Plan (1987–88) respectively.

Construction Labour

Around two million workers in the country, both male and female, are employed in various forms of building and construction activity. They are mostly rural migrant labour either landless or share-croppers, and marginal/small/land holders who come to the cities in search of work, being drawn from the same pool as the unorganised agricultural labour in the rural areas. This is not only migrant in the conventional sense of having moved their original place of residence due to economic pressure but also extremely mobile due to the conditions and problems of employment in the construction industry which is characterised by high turnover, use of contract labour, irregular employment, seasonal variability dependence on supplies of raw materials etc. Some of the characteristics of this category are:[27]

(i) high economic vulnerability due to the double combination of irregular and unstable employment and consequent high mobility on the one hand and their utilisation only in the lowest grade of job on the other;
(ii) high proportion of female labour and frequent employment of whole family or couples;
(iii) low capacity to utilise existing services because of high mobility; ignorance resulting from migrancy, lack of responsibility of civic agencies towards them as well as poverty, illiteracy etc.;
(iv) low health status, particularly harmful to children, resulting from hazardous, insanitary and inadequate working conditions;
(v) lack of unionisation due to mobility and other reasons mentioned above; and
(vi) lack of opportunity for training, skills up-grading or literacy for older people and of basic education for children.

The basic steps that need to be taken to provide a fair deal for this group are:

(a) provision of some degree of stability and longer duration of employment;
(b) recognition of the special role of women in the labour and provision for them; and
(c) infrastructure for the development and practical implementation of services which are provided for by the existing legislation.

To a limited extent the Workmen's Compensation Act, 1923, the Minimum Wages Act, 1948, the Employees' State Insurance Act, 1948, the Contract Labour (Regulation and Abolition) Act, 1970, and standing instructions relating to casual labour applicable to the employing agencies, apply to construction labour.[28] It has, however, been noticed that these legislative enactments and

[27] *Sixth Five-Year Plan (1980–85), op. cit.*, p. 409.
[28] *Ibid.*

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standing orders do not cover safety at work and social security. To remove this lacunae, a Central legislation for construction workers is under consideration.

Inter-State Migrant Labour

Lack of employment opportunities have forced many rural workers to migrate in search of jobs. Special problems of this category of labourers have been recognised. To regulate the employment and conditions of service of such workers and to provide them certain welfare amenities, the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979 was enacted and rules framed under it were brought into force with effect from October 2, 1980. The Act provides for registration and licensing of establishments and contractors. The other obligations on the part of the contractor relate to furnishing of particulars of workmen, issue of pass book to every workman employed by him, payment of wage and allowances according to guidelines, provisions of amenities like suitable residential accommodation, adequate medical facilities, protective clothing to suit varying climatic conditions and suitable conditions of working. The Act also provides for inspection, deterrent punishment and raising of industrial disputes by the migrant workmen.[29]

Wages and Earnings

The growth of wages and earnings of workers is an indication of the developing property of the population in paid employment. The Fair Wages Committee set up by the Government of India in 1948 recognised that "no wage policy can be regarded as just or even economically sound unless it encourages increase of the national income and secures to the wage-earner a legitimate share of the increase".[30] The Committee recommended that the fair wage should be somewhere between the minimum wages as the lower limit and the industry's capacity to pay as the upper limit depending on:

(i) the productivity of labour;
(ii) the prevailing rates of wages;
(iii) the place of the industry in the economy of the country; and
(iv) the level of national income and its distribution.

Fixation and Revision of Minimum Wages

The Ministry of Labour is responsible for fixing minimum wages under the Minimum Wages (M.W.) Act in respect of employments for which the Central Government is the appropriate authority. There are at present 43 employments for which the Central Government is responsible for fixation/revision of minimum wages. The names of these 43 employments have been given in Appendix 10.5. The employment in uranium mines has been added to the schedule to the M.W. Act during 1986.

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[29] *Ibid.*
[30] *Indian Labour Year Book, 1983, op. cit.*, p. 69.

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The piece rate minimum wages were fixed in the stone mine in the Faridabad District, for the first time on September 27, 1985. The minimum rates of wages for employments in Construction or Maintenance of Roads or Building Operations, Stone Breaking or Stone Crushing, Maintenance of Building Operations, Maintenance of Building and Construction and Maintenance of Runways and 32 mining employments were revised on October 29, 1986. (For revised rates of minimum wages see Appendix 10.6).

Revision of Wages in Agriculture

Another aspect relevant to the upliftment of certain sections of the poor relates to the effective enforcement of the provisions of the M.W. Act, 1948 which provides for the fixation and periodical revision of minimum rates of wages in agriculture and other employments in the unorganised sectors. The protection mainly benefits the landless agricultural labourers and workers in other 'sweated employments'.

Except in the employments under the Central Government which do not account for much under these categories, the implementation of this Central legislation is the responsibility of the State Governments. Slow coverage of new employments, delay in periodical revisions of the minimum rates fixed under the Act and ineffective enforcement of the provisions have been the main issues relating to this measure. The need for strengthening the enforcement machinery, simplification of the procedure relating to coverage and revisions, the linkage of the rates with the consumer price index numbers, involvement of the rural workers' organisation, village panchayats, other departments of State Governments in the implementation of the provisions are among the steps advocated to improve the results. In order to effectively implement the minimum wages in agriculture and strengthening implementation machinery, a centrally sponsored scheme has been started on pilot basis in four stages viz. Madhya Pradesh, Rajasthan, Orissa and Manipur. These States were to appoint 200 rural labour inspectors in the blocks of these States where the population of agricultural workers belonging to the SC/ST community are more than 70 per cent.

In order to reduce disparity in minimum wages and avoid flight in business from one State to another, certain guidelines have been framed and forwarded to all State Governments, Union Territory Administrations for guidance. According to the guidelines, the country has been divided into six regions, and in each region one regional Minimum Wages Advisory Committee would be set up. The Advisory Committee would go into only specific employments e.g., minimum wages fixed for the same employment(s) in one of a set of continguous States caused problems in other State(s). The Advisory Committee would not be a statutory body; its function would be advisory and consultative in nature. At the Regional Labour Ministers Conference held during October–December 1987, it has been decided that minimum wages may be revised where they are due, and wherever necessary, the enforcement machinery would be strengthened with central assistance. For enhancing the mobility of inspectors and labour officers some assistance may be given to them by way of central contribution of

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interest subsidy. Interest free conveyance purchase advance may be granted to them through the banks or State Governments.

Industrial Relations Situation

Industrial harmony is indispensable for a country to make economic progress as it leads to greater cooperation between workers and management, better production and productivity which will ultimately contribute to all round prosperity of the country. Healthy industrial relations, on which industrial harmony is founded, is a matter of vital concern to the community as a whole. The problem of industrial relations is essentially one of attitudes and approaches of the parties concerned. A system of industrial relations based on the spirit of cooperation ensures that employers and workers recognise the larger interests of the community while promoting or protecting their sectional interests. This is the true significance of the doctrine of industrial harmony in its three dimensional aspects. One of the indicators of the state of industrial relations in the country is the data relating to loss of mandays due to strikes and lockouts. There has been a general stability in industrial relations situation in the country during 1987 (January–September) compared to the corresponding period during 1986.[11] Though there has been a marginal rise in loss of mandays from 17.8 million to 20.6 million, there has been no major industrial unrest in the country. Strikes and lockouts have generally been confined to Cotton and Jute Textiles and Engineering Industries in the States of West Bengal, Tamil Nadu, Maharashtra and Andhra Pradesh.

The Government has enacted legislations and other measures aimed at maintaining harmonious relations between workers and management.

The Industrial Disputes Act, 1947

The Industrial Disputes Act has been the main legislative framework which has provided the machinery and procedure for the settlement of disputes through mediation, conciliation, arbitration and adjudication. Under this Act, the appropriate Government may take steps for settlement of disputes where bilateral negotiations and conciliations have failed. The Act has specified the industrial establishments in respect of which the Central Government is the appropriate Authority. The Act introduced the principle of compulsory arbitration and prohibited strikes without notice in public utility service. The Ministry of Labour has been actively associating itself with the State Governments in taking steps towards ending strikes and lifting lockouts even where the affected establishments fall within the purview of the State Governments.

The Labour Relations Monitoring Unit

The Labour Relations Monitoring Unit set up in the Ministry of Labour with a view to monitoring information on industrial relations receives cases of

[11] *Ibid.*

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industrial unrest from the employers' organisations, trade unions, Ministries of Government of India as well as State Governments. Each of the cases reported is taken up with the respective State Governments to bring about an early settlement of the dispute. The State Governments on their part have also been requested to set up such Cells for monitoring industrial relations in their States and to send periodical reports to the Central Monitoring Unit on the prevailing/ anticipated industrial unrest. The Unit receives fortnightly reports from the State Governments on industrial relations on the basis of which the overall industrial relations situation in the country is assessed.

A statement of the industrial relations situation at a glance during 1987 is given in Appendix 10.7.

Education and Training

The Directorate General of Employment and Training in the Ministry of Labour is operating a number of training schemes to ensure a regular supply of skilled manpower at different levels. The Central Government is responsible for laying down the policies and training standards, training of vocational instructors and industrial supervisors, conduct of final trade tests and award of certificates. The responsibility for the day-to-day administration and implementation of craftsmen training institutes rests with State Governments. In the formulation of a National Policy in this regard, the Central Government is advised by two tripartite bodies viz., the National Council for Vocational Training (NCVT) and the Central Apprenticeship Council (CAC). The following are the programmes which have been undertaken to promote labour education.

Workers Education Programme

In pursuance of the recommendation of the Indian Labour Conference held in July 1957, the Central Board for Workers Education was set up in 1958 with a view to implement the Workers' Education Scheme. The Scheme aims at equipping all sections of workers, including rural workers, for effective participation in social and economic development of the nation, developing among them a greater understanding of the problems of their responsibilities and promoting leadership from among the rank and file of workers.

The Board with its headquarters at Nagpur has a network of 43 Regional Centres and 19 Sub-Regional Centres spread all over the country. These are divided into 4 zones with zonal offices at New Delhi, Bombay, Calcutta and Madras. It is wholly financed by the Government of India. The net grant paid to the Board for the year 1986–87 was Rs. 351.23 lakh, the estimated amount of grant payable to the Board for the year 1987–88 is Rs. 414.64 lakh which included Rs. 62.10 lakh under the plan.[12]

As envisaged under the 1986 20-Point Programme, the Board's programmes

[12] *Ibid.*

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for workers in rural and unorganised sectors continued to receive greater attention and priority during the year 1986–87. Special full-time two months' programmes for rural worker educators were conducted in which 42 rural workers educators were trained. The Board also trained 86 rural organisers during 1986–87 for various State Governments under the Central Honorary Rural Workers Organisers Scheme and provided to the State Governments necessary assistance and guidance in the utilisation of Rural Organisers.

Programmes for weaker sections of the society such as headload workers, construction workers, civic and sanitation workers, young workers etc. were also organised during the year. Special attention was given to the participation of women workers in different programmes of the Board. During the year 1986–87, 42 women worker-teachers, 834 women workers at unit level, 23 women worker teachers in Refresher Courses, 213 women workers in leadership development courses, 115 women workers in three week full-time courses, 3009 women workers in Functional Adult Literacy Classes, 2082 women workers in short-term training programmes and 38,702 rural women workers in two-day programmes were trained. Besides, 5428 women workers were trained in the unorganised sector.

In order to cater to the needs of child labour, the Board has opened a Sub-Regional Centre in Sivakashi in Tamil Nadu where there is a concentration of child labour in match industries. Special programmes are not only conducted for child labour in the form of weekend courses but two-day awareness programmes are also being conducted for the parents of the child labour. During the year, 24 camps were organised in which 960 parents participated and 60 weekend classes were conducted in which 1786 children participated.

Table 10.3 gives a summary of the activities of the Board from April 1, 86 to March 31, 1987.

Training of Workers from Small-Scale Industries/Unorganised Sector

The Central Board for Workers Education started the training of workers from small-scale industries/unorganised sector from September 7, 1980. During the year 1986–87, 300, 5-day camps were conducted and 11,785 workers were trained from small-scale industries like handloom, beedi, handicrafts, seri-culture etc.

Training of Scheduled Castes and Scheduled Tribes Workers

The Scheduled Castes and Scheduled Tribes workers have been participating in different training programmes of the Board, viz., worker-teacher training, workers' training, short-term special training programmes, rural workers' education programmes and programmes for small-scale/unorganised workers.

Grants-in-aid

The Board gives financial assistance to the extent of 90 per cent of the total admissible expenditure to the trade unions for conducting short-term

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Table 10.3
Activities of the Board

Sl. No.	Programmes conducted	No. of Programmes	No. of participants
1	2	3	4
A.	*National Level*		
	1. Courses for Trade Union Officials	11	303
B.	*Regional Level*		
	1. Traning classes for worker-teachers	41	999
	2. Training classes for Rural workers Education: Board's Scheme	2	42
	G.O.I. Scheme	4	86
	3. Joint Programme for Representatives of Workers and Managements	516	14702
	4. Leadership Development Training Courses	194	3924
C.	*Unit Level*		
	1. Classes for Workers	2007	47979
	2. F.A.L. Classes	621	14732
	3. Grants-in-aid programmes	—	—
D.	*Block Level*		
	1. Five Days camps for workers in unorganised sector	300	11785
E.	*Village Level*		
	1. Two Day Awareness Camps	2304	91732

programmes of 1–14 days duration. Since inception of the grants-in-aid scheme till 1985–86, grant amounting to Rs. 79.16 lakh were paid by the Board to unions/institutions. During the year 1986–87, the Board paid Rs. 7.54 lakh as grant. The total number of workers trained by the grantee unions/institutions upto March 31, 1987 was 4,39,940 workers.[33]

National Labour Institute

The National Labour Institute is a society registered under the Societies Registration Act, 1960. It was set up by the Government of India as an autonomous institution in 1972 with a variety of objects including, *inter alia*, training of officials in labour administration, leadership training for trade union functionaries, research and consultancy in the field of labour and personnel management, etc.[34] A brief account of the programmes and activities of the Institute during the year 1986–87 is as follows:

[33] *Ibid.*
[34] Department of Labour, *Annual Report 1983–84*, Vol. I, *op. cit.*, p. 84.

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Education and Training The education and training programmes of the Institute are primarily designed to benefit four groups of beneficiaries:

(a) Labour administrators of Central and State Governments and other officials including personnel involved in inspection, welfare, conciliation and enforcement;
(b) Leaders and office bearers of trade unions in public and private sector enterprises;
(c) Organisers of rural poor, particularly those belonging to Scheduled Castes and Scheduled Tribes, and trade union leaders and office bearers of agrarian workers' unions;
(d) Managers and supervisors of public and private sector industry.

The education and training programmes have been of the following four types:

(i) Short-term theme issues based training programmes;
(ii) Motivational camps for organising rural labour;
(iii) National Seminars and Workshops; and
(iv) Programmes done with international collaboration.

The main focus of the training efforts has been to reinforce participation of institutions and methods; and to help participants develop appropriate skills, motivation and attitudes. The emphasis in training has been on learning through small group work, discussions, applied behavioural science techniques and case studies.

Rural Labour Training Camps by the National Labour Institute The National Labour Institute has been engaged in carrying out certain designed educational activities for different categories of rural poor labour since 1975. One of these activities is to organise rural labour education and training camps. Most of the participants in the camps are landless agricultural labourers belonging to Scheduled Castes and Scheduled Tribes. Such camps have helped in improving the general and social awareness of the participants, making them perceive their own strength and weakness, help them to overcome their initial shyness and improve confidence and self-help with which they can grapple with the problems confronting their day-to-day life better.

During the year 1986–87, the Institute carried out the education and training programmes shown in Table 10.4.[35]

Seminars and Workshops Through Seminars and Workshops, the National Labour Institute has sought to direct attention on critical issues to mobilise exports and concerned opinion for discussion and action. During the year 1986–87, the Institute organised a national tripartite seminar on "Grievance Management in Industry". A national workshop on 'Workers in the Beedi

[35] Information received from the Ministry of Labour in the year 1988.

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Table 10.4
Education and Training Programmes

Title of the programmes	*No. of programmes*	*No. of participants*
Programmes for Labour Administrators	6	123
Trade Union Beneficiaries	11	293
Programmes for Managers	10	192
Rural Education Programmes	6	122

Industry' was also held. In addition, two national seminars on 'Workers Participation in Management' were also organised.

Research Programmes With its action orientation, the Institute's research efforts have been concentrated on subjects of practical importance. 50 research projects were completed till 1986 and one during the year 1987; out of 16 research projects in hand, subjects of some of them are as follows:

1. Workers' participation in management.
2. A study on the working of the Equal Remuneration Act.
3. Action research to motivate tribals for participation in development scheme in Jhabua (M.P.).
4. Evaluation of economic impact on minimum wages.
5. Women resources development in unorganised sector.

LABOUR POLICY DURING SEVENTH PLAN

Labour plays a crucial role in the development of the country's economy. Labour, as a factor of production, enters the production process from the supply side as well as from the demand side. The role of labours has to be perceived in this broad perspective. The Seventh Plan has laid down the criteria for a successful labour policy. It has been stated in the Plan document that the success of labour policy has to be adjudged on the basis of the productivity standard that it helps the economy to achieve. While technical factors and the state of technology are crucial in determining productivity levels, there is no gainsaying the fact that discipline and motivation of workers, their skill, the state of industrial relations, the extent of effectiveness of participation of workers, the working climate and safety practices are also of great importance. While maximising employment generation, requisite attention has to be directed to the improvement of labour productivity through the adoption of up-to-date technology in productive processes in major sectors and corrective measures for industrial sickness.[36]

[36] *Ibid.*

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Strategy in the Seventh Plan

The major thrust of the Seventh Plan is on improvement in capacity utilisation, efficiency and productivity. Suitable plan schemes have been formulated and included in the Seventh Plan to achieve these tasks assigned to the labour class.

Productivity of all the factors of production is of great value. But in the case of labour, it gains more importance due to the fact that higher productivity of labour is expected to ensure higher wages to the workers while keeping the cost of production at a low level. Productivity of labour, no doubt, depends upon the level of technology that the economy has achieved but it is also greatly dependent upon the quality of training imparted to the workers at different levels. Absorption of trained craftsmen is related to the quality of training. Training has to suit the requirements of industry and has to be of the best quality. This will also help in quality output of industrial goods and raise their competitiveness both in domestic and international markets. The youngsters who will be seen on taking technical jobs after the completion of their training in the technical institutions, need to be trained on the modern machines and equipped with the latest technology. The machinery and equipment in the existing ITIs of the State Government has become obsolete and needs replacement. In view of this urgent need, a centrally sponsored scheme has been taken up in the Seventh Plan on sharing basis which will help the State Governments, in replacing their obsolete machinery with modern equipment. The scheme has been taken up in phases, in view of the limited resources.

Workers' Participation in Management

Another factor which determines productivity is the effective participation of the workers in the management. A new scheme has been formulated and implemented for the participation of the workers in management. A Cell in the Ministry has been created under the plan scheme to monitor the progress of workers' participation in management.

Industrial and Mines Safety

It is of extreme importance to ensure safety standards in the hazards industries and mines. The working conditions in such industries and mines have a bearing on the productivity of labour. The plan schemes of the Directorate General of Factory Advice Service and Labour Institute (DGFASLI) and Directorate General of Mines Safety (DGMS) have been formulated with the objective of carrying out research activities to prevent industrial and mines accidents and to strengthen their organisations to carry out the inspections by trained and competent staff.

Efficiency in Operation

Another thrust area of the Seventh Plan is efficiency. As part of the Labour Policy, the Ministry has introduced a phased programme of computerisation of

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its various operations. In order to bring efficiency in the operations of the employment exchanges and to provide better service to the job seekers, the Ministry has introduced a phased programme of computerisation of State Governments' Employment Exchanges having live register of one lakh or more. It is also proposed to cover at least one Employment Exchange in every State under this programme.

A computer has been installed in the DGE & T to process data relating to Employment Market Information. Labour Bureau is being equipped with a computer process the collected data expeditiously.

20-Point Programme

Implementation of the 20-Point Programme is a serious concern of the Government of India. Two plan schemes of the Ministry 'Rehabilitation of Bonded Labour' and 'Strengthening of Enforcement Machinery for Implementation of Minimum Wages in Agriculture' form part of the 20-Point Programme of the Government. The Ministry of Labour has paid particular attention to the enforcement of the acts and the welfare measures relating to these two schemes.

Rehabilitation of Bonded Labour

Bonded labourers form the poorest of the poor strata of the society. Bonded Labour System is an evil which needs to be eradicated from the society. The policy adopted during the Sixth Plan continues in the Seventh Plan also. The centrally sponsored scheme, which was taken up during the Sixth Five-Year Plan to supplement the efforts of State Governments continued during the Seventh Five-Year Plan. The freed bonded labourers must be rehabilitated effectively; otherwise there will be a tendency on their part to fall back into the clutches of their master. The quantum of assistance given to the freed bonded labourers has been increased. The State Governments have been impressed upon that the scheme should not be taken in isolation but connected with the other poverty eradication programmes. Voluntary agencies are to be associated in the process of the identification and rehabilitation of bonded labour. For this purpose, a centrally sponsored scheme has been taken up recently wherein the voluntary agencies are to be associated not only in the process of the identification of the bonded labour but also in their rehabilitation.

Child Labour

The Seventh Plan has laid stress on improving the fate of working children. The Plan document states that 'since it is not feasible to eradicate the problem of child labour at the present stage of economic development, attention has to be focussed on making the working conditions of child labour better and more acceptable socially. Improved legislation coupled with better enforcement machinery are called for.'

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National Policy on Child Labour

Efforts have been made to tackle the problems of child labour. A National Policy on Child Labour was formulated and announced in the Parliament. The Policy consists of three main ingredients:

1. Legal Action Plan;
2. Focussing of general welfare and development programmes on child labour and their families; and
3. A Project-based Plan of Action.

Under the Legal Action Plan, emphasis will be laid on strict and effective enforcement of the provisions of the Child Labour (Prohibition and Regulations) Act, 1986, the Factories Act, 1948, the Mines Act, 1950, the Plantation Labour Act, 1951, and other Acts containing provisions relating to employment of children. The second aspect of the policy will be to utilise the ongoing development programmes for the benefit of child labour and their families. Various national development programmes exist with wide coverage in the areas of education, health, nutrition, integrated child development and income and employment generation for the poor. These programmes will be utilised to create socio-economic conditions in which the compulsions to send the children to work diminish and the children are encouraged to attend schools rather than take wage employment.

Under the project based Plan of Action, 10 projects are proposed to be taken up in areas of child labour concentration under which the following action will be taken in each of these areas:[37]

(i) Stepping up the enforcement of the Child Labour (Prohibition and Regulation) Act, 1986, the Factories Act, 1948, the Mines Act, 1948 and such other Acts within the project area. If necessary, special enforcement staff will be created for the purpose.

(ii) Coverage of families of child labour under the income/employment generating programmes under the overall aegis of anti-poverty programmes.

(iii) Formal and non-formal education of child labour and stepping up programmes of adult education for the parents of the working children.

(iv) Setting up of special schools for the child workers where provisions of education, vocational training, supplementary nutrition, health care, etc., will be made. If necessary, stipends will be given to children taken out from the forbidden employments, to compensate for their loss in earnings.

(v) Creation of awareness, through social activity groups and by other means, so as to educate and convince people regarding the undesirable aspects of child labour.

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[37] *Ibid.*

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Women Labour

Women labour deserves special attention. Women are usually paid unfair wages. This is one of the major problem faced by them. Equal Remuneration Act has been amended to ensure equality of wages. To ameliorate the condition of women labour, grants-in-aid are given to the voluntary organisation to take up projects relating to women welfare. Action oriented research projects are also funded.

Implementation of Laws relating to Child and Women Labour

The existing State enforcement machinery needs to be equipped with additional staff to enforce various Acts relating to Women and Child Labour. A centrally sponsored scheme for strengthening of state machinery for implementing laws relating to Women and Child Labour is envisaged to be taken up in some States.

Rural Labour

The rural unorganised labour includes the landless labourers and small and marginal farmers, share croppers, rural artisans, forest labour, fishermen and persons engaged in self-employment like beedi workers, leather workers and handloom workers. Apart from the general problem of unemployment, rural labour faces problems of under-employment, low wages, lack of education and organisation. Among the rural workers, the plight of the Scheduled Castes and Scheduled Tribes employed in the agriculture sector is the worst. During the Plan, it is to be ensured that the minimum wages as prescribed under the law are paid to them. A Centrally Sponsored Plan Scheme, 'Strengthening of Enforcement Machinery in the States/UTs' for implementation of minimum wages in agriculture has been taken on pilot basis in the four States of Rajasthan, Manipur, Orissa and Madhya Pradesh and the Rural Labour Inspectors have been appointed at the block levels where there is large concentration of SCs/STs.

Organising Rural Workers

One of the causes of exploitation of rural labour is lack of organisation. To bring awareness among rural workers a Centrally Sponsored Plan Scheme "Organising Rural Workers" was taken up during the Sixth Plan. The scheme has been restructured recently. The objective of the scheme to identify the various categories and sub-categories of rural unorganised labour and to educate and organise them with a view to ensure that socio-economic gains of development percolate to them. The plan schemes of Central Board of Workers' Education is extending its coverage to rural labour.

Urban Unorganised Labour

There has been a steady flow of labourers from the rural areas to the urban and semi-urban areas. The labourers are coming in search of employment due to

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the fact that in the rural areas they are finding it difficult to provide livelihood to their families. They are taking employment in the unorganised sector in small towns cities, where the legal provisions are usually non-existent. The strict enforcement of the Contract Labour (Regulation and Abolition) Act, 1977, Minimum Wages Act, 1948 and the other concerned legislations will help them to secure their due right. A Plan Scheme of the Central Board of Workers Education has been launched to help them to bring awareness among the unorganised workers.[38]

[38] *Ibid.*

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APPENDIX 10.1

Comparative Statement of Accidents in Coal and Non-Coal Mines

Year	Coal				Non-coal			
	No. of accidents		No. of persons		No. of accidents		No. of persons	
	Fatal	Serious	Killed	S/ Injured†	Fatal	Serious	Killed	S/ Injured
1981	165	1151	184	1213	63	467	70	484
1982	158	1135	185	1184	71	523	78	552
1983	156	1169	191	1219	64	453	75	469
1984	160	1196	176	1236	62	436	75	448
1985	176	1007	204	1060	67	418	69	432
1986	180	1167	214	1199	70	391	86	409
1987*	155	805	169	839	73	364	80	375

* Provisional.

† Includes seriously injured persons in fatal accidents.

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APPENDIX 10.2

No. of Candidates for different Examinations and No. of successful Candidates

Examination conducted	*1983*		*1984*		*1985*		*1986*		*1987*		
	Authorised	*Pass*	*Authorised*	*Pass*	*Authorised*	*Pass*	*Authorised*	*Pass*	*Authorised*	*Pass*	
1	2	3	4	5	6	7	8	9	10	11	12
1st Class CMR	1297	58	1330	116	1352	68	1485	62	1457	—	Result
2nd Class CMR	1509	144	1409	130	1447	129	1576	118	1581	—	not yet
Surveyor CMR	363	46	367	35	418	27	471	62	438	—	declared
Overman CMR	2786	196	2743	215	2689	256	2475	150	2422	—	
Sirdar	3589	653	5172	862	3477	731	4827	919	2181	340	
Shotfirer	634	255	437	190	286	113	545	181	741	260	
W.E. 1st Class CMR	88	33	58	29	61	31	80	42	31	21	
W.E. 2nd Class CMR	68	42	53	34	48	36	151	107	73	68	
Gas-Testing (Coal)	3718	1138	6131	2009	3600	1142	4468	447	3396	1063	
Medical 5-Yearly (Coal)	1406	1319	1182	1151	768	691	1682	1525	1630	1592	
Medical Senior & Junior Board (Coal)	334	314	178	168	116	112	279	256	340	311	
1st Class MMR (U/R)	162	19	152	29	166	10	143	25	129	—	Result
1st Class MMR (Res)	328	36	368	66	360	47	421	29	392	—	not yet
2nd Class MMR (U/R)	150	45	163	33	189	15	197	21	196	—	declared
2nd Class MMR (Res)	227	24	253	36	247	44	299	45	272	—	
Surveyor MMR (U/R)	76	15	96	9	119	13	196	18	205	—	
Surveyor MMR (Res)	101	27	129	28	167	34	246	36	255	—	

APPENDIX 10.2 *Contd.*

Examination conducted	*1983*		*1984*		*1985*		*1986*		*1987*		
	Authorised	*Pass*	*Authorised*	*Pass*	*Authorised*	*Pass*	*Authorised*	*Pass*	*Authorised*	*Pass*	
1	2	3	4	5	6	7	8	9	10	11	12
Foreman MMR (U/R)	293	44	291	69	239	20	234	56	215	—	
Foreman MMR (Res)	981	141	955	105	1020	100	1062	113	1016	—	
Mate MMR (U/R)	506	185	440	126	242	73	447	130	508	166	
Mate MMR (Res)	1325	535	561	243	716	287	1088	395	985	363	
Blaster MMR (U/R)	594	194	222	67	363	104	479	170	327	102	
Blaster MMR (Res)	324	209	184	79	247	121	410	176	280	118	
W.E. Driver 1st Class MMR	6	3	41	19	50	16	151	71	28	14	
W.E. Driver 2nd Class MMR	10	4	58	41	69	34	129	90	28	13	
Gas-Testing MMR	330	186	247	101	220	82	515	258	434	203	
Medical 5 Yearly MMR	77	77	1318	1303	332	320	1035	982	1067	1041	
Medical Senior & Junior Board MMR	85	83	102	72	72	69	166	141	72	60	

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APPENDIX 10.3

Operations/Categories of Work in which Employment of Contract Labour Prohibited

Sl. No.	*Name of the industry*	*Nature of job/operation*	*Date of abolition*
1	2	3	4
1.	Coal Mines	(i) Raising or raising-cum-selling of coal; (ii) Coal loading and unloading; (iii) Soft coke manufacturing; (iv) Over-burden removal and earth; cutting; and (v) Driving of stone drifts and miscellaneous stone cutting underground.	1–2–1975
2.	Buildings	Sweeping, cleaning, dusting and watching of buildings owned or occupied by the establishments in respect of which the appropriate government is the Central Government	1–3–1977
3.	Iron Ore Mines	(i) Over-burden removal; (ii) Drilling and blasting;	10–5–1980
		(iii) Float ore operations; (iv) Muck cleaning operations in crushing plants, screening plants and/or conveyor belts; and (v) Wagon levelling operations.	28–5–1982
4.	Limestone, Dolomite and Manganese Mines	(i) Over-burden removal; and (ii) Drilling and blasting	22–6–1980
5.	Coal Washeries	(i) Unloading of raw coal; (ii) Charging of magnetite; and (iii) Plant cleaning including removal of slippage waste, muck cleaning; magnetite removal etc.	25–7–1983
6.	Chromite Mines	(i) Over-burden excavation and removal; (ii) Drilling and blasting; (iii) Raising of ore; and (iv) Transportation of over-burden to dumps and ore to stocking sites.	8–12–1984
7.	Magnesite Mines	(i) Over-burden removal; (ii) Drilling and blasting; and (iii) Raising of minerals.	8–12–1984
8.	Gypsum Mines	(i) Over-burden removal; and (ii) Mining/raising of mineral.	8–12–1984

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APPENDIX 10.3 *Contd.*

Sl. No.	*Name of the industry*	*Nature of job/operation*	*Date of abolition*
1	2	3	4
9.	Mica Mines	(i) Raising of mica; (ii) Drilling and blasting; (iii) Dewatering of mines; (iv) Muck removal; and (v) Processing of mica.	8–12–1984
10.	Fire-Clay Mines	(i) Over-burden removal; (ii) Raising and stocking of fire-clay; (iii) Loading and transportation; and (iv) Dewatering of mines.	28–2–1987.
11.	Railways	Cleaning in catering establishment and pantry cars on railways.	28–7–1987

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APPENDIX 10.4

Statement showing the State-wise Number of Bonded Labourers Identified, Released and Rehabilitated (Position as on 30–12–1987)

Sl. No.	*Name of the State*	*No. of bonded labourers*	
		Identified & released	*rehabilitated*
1	2	3	4
1.	Andhra Pradesh	26,740	24,773
2.	Bihar	12,102	10,367
3.	Karnataka	62,689	49,215
4.	Madhya Pradesh	6,209	5,159
5.	Maharashtra	949	879
6.	Orissa	47,465	39,333
7.	Rajasthan	6,952	6,817
8.	Tamil Nadu	33,581	33,581
9.	Uttar Pradesh	23,853	23,298
10.	Kerala	823	823
11.	Gujarat	64	64
12.	Haryana	379 (Under Classification)	295
	TOTAL	2,21,806	1,94,604

Balance to be rehabilitated–27,202.

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APPENDIX 10.5

List of Scheduled Employments for which Central Government is the Appropriate Government

1. Employment in agriculture.
2. Employment in the construction or maintenance of roads or in building operations.
3. Employment in stone breaking or stone crushing.
4. Employment in the maintenance of buildings.
5. Employment in the construction and maintenance of runways.
6. Employment in the local authority (major ports and cantonment boards).
7. Employment in tanneries and leather manufactory.
8. Employment in gypsum mines.
9. Employment in barytes mines.
10. Employment in bauxite mines.
11. Employment in manganese mines.
12. Employment in china clay mines.
13. Employment in kyanite mines.
14. Employment in copper mines.
15. Employment in clay mines.
16. Employment in stone mines.
17. Employment in white clay mines.
18. Employment in fire clay mines.
19. Employment in ochre mines.
20. Employment in steatite (including soapstone and talc mines).
21. Employment in asbestos mines.
22. Employment in chromite mines.
23. Employment in quartzite mines.
24. Employment in quartz mines.
25. Employment in silica mines.
26. Employment in mica mines.
27. Employment in magnesite mines.
28. Employment in graphite mines.
29. Employment in felspar mines.
30. Employment in redoxide mines.
31. Employment in laterite mines.
32. Employment in dolomite mines.
33. Employment in iron ore mines.
34. Employment in granite mines.
35. Employment in wolfram mines.
36. Employment in magnetite mines.
37. Employment in rockphosphate mines.
38. Employment in hematite mines.
39. Employment in loading, unloading in railways, goods sheds and ports and docks.
40. Employment in ash pit cleaning on railways.
41. Employment in marble and calcite mines.
42. Employment in uranium mines.
43. Employment in loading and unloading in ports and docks.

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APPENDIX 10.6

Revised Rates of Minimum Wages of Workers in Construction or maintenance of road or in-building Operations, Stone-breaking or Stone-crushing, Maintenance of Buildings, Construction and Maintenance of Runways

Category	*Rate of wages per day*	
Unskilled	Rs. 9.50 to Rs. 14.25	according to areas
Unskilled/Semi-skilled supervisory	Rs. 12.00 to Rs. 17.50	" "
Skilled & clerical	Rs. 15.00 to Rs. 22.25	" "
Highly skilled	Rs. 19.25 to Rs. 27.75	" "

Mining Employment:	Above ground	Below ground
Unskilled	Rs. 12.25	Rs. 14.75
Semi-skilled/unskilled	Rs. 15.25	Rs. 18.25
Supervisory skilled	Rs. 19.00	Rs. 22.50
Clerical	Rs. 19.00	not available

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APPENDIX 10.7

Labour Situation in 1987 at a Glance

State/Union Territory	*No. of industrial disputes referred to IRM*	*No. of failure reports received*	*Adjudication, arbitration and award*				*Strikes & lockout (P) (Jan.–Sept.)*		
			No. of disputes referred for		*No. of disputes for which awards are available*		*No. of strikes*	*No. of workers involved (000)*	*No. of mandays lost (000)*
			Adjudication	*Arbitration*	*In favour of workers*	*Against workers*			
1	2	3	4	5	6	7	8	9	10
1. Central Sphere	..	..	..	..	..	..	240	599	99
2. Andhra Pradesh	..	..	..	..	..	..	48	274	1,891
3. Assam	..	..	..	..	..	..	5	1	1
4. Bihar	..	..	..	..	..	..	28	25	1,533
5. Gujarat	..	..	..	..	..	..	156	32	1,366
6. Haryana	4,151	2,371	1,487	1	279	165	42	12	298
7. Himachal Pradesh	..	..	..	..	..	..	1	*	—
8. Jammu & Kashmir	..	..	..	..	..	..	..	..	..
9. Karnataka	..	..	..	..	..	..	9	3	145
10. Kerala	..	..	..	..	..	..	36	14	200
11. Madhya Pradesh	..	..	..	..	..	..	22	17	120
12. Maharashtra	..	..	..	..	..	..	130	27	2,472
13. Manipur	..	..	..	..	..	..	4	1	10

APPENDIX 10.7 *Contd.*

1	2	3	4	5	6	7	8	9	10
14. Meghalaya	..	..	..	..	..	..	—	—	—
15. Nagaland	..	..	..	..	..	..	..	..	..
16. Orissa	..	..	..	..	..	..	9	2	31
17. Punjab	..	..	..	..	..	..	13	5	56
18. Rajasthan	3,836	1,719	812	—	340	84	66	32	308
19. Sikkim	..	..	..	..	..	..	..	..	..
20. Tamil Nadu	..	..	..	..	..	..	168	83	2,372
21. Tripura	..	..	..	..	..	..	2	*	20
22. Uttar Pradesh	..	..	..	..	..	..	40	17	285
23. West Bengal	..	..	..	..	..	..	146	96	8,313
24. Andaman & Nicobar Islands	..	..	..	..	..	..	—	—	—
25. Arunachal Pradesh	..	..	..	..	..	..	—	—	—
26. Chandigarh	..	..	..	..	..	..	—	—	—
27. Dadra & Nagar Haveli	..	..	..	..	..	..	..	..	..
28. Delhi	..	..	..	..	..	..	21	10	165
29. Goa	304	26	38	—	6	—	13	3	38
30. Lakshadweep	..	..	..	..	..	..	—	—	—
31. Mizoram	..	..	..	..	..	..	—	—	—
32. Pondicherry	..	..	..	..	..	..	..	..	..

P) – Provisional; (—) Nil; (. .) Not available; (*) Less than 500

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11

NATIONAL NUCLEAR ENERGY PROGRAMME

INTRODUCTION

During the industrial civilisation machines have invaded virtually every aspect of man's life. This has resulted in a massive growth in the consumption of energy, increasing thereby the pressure on dwindling sources of energy such as coal and oil. As such an industrial society based primarily on coal, oil and gas cannot go on for long because the fossil fuels cannot be replenished once they are used up.

Another significant source of energy is water power. But the world's potential resources of water power are not large enough to meet the future demands for energy. Their chief importance is not in their quantity but in their availability and renewability.

The energy from the sun, geothermal source, tidal and wave motions and wind can also be exploited usefully, for the long-term solution of the energy problem. But the harnessing of energy from these sources is beset by techno-economic problems as far as their exploitation and distribution is concerned. In this context the only pragmatic answer to the world's energy problem is fission energy. This development will place in our hands a vast energy source and also contribute to progress in various other disciplines like medicine, agriculture and industry.[1]

BACKGROUND TO THE DEVELOPMENT OF NUCLEAR ENERGY PROGRAMME IN INDIA

Why Nuclear Energy for India?

India has a fairly high consumption of commercial energy in comparison with its gross national product as compared to other developing countries. Estimates vary as to the precise quantities involved, but observers agree that the total energy use in India has grown considerably over the last few decades, especially after independence when massive industrialisation was resorted to.

Commercial and non-commercial energy uses have grown but the former has grown faster than the latter. Commercial energy in India is mainly derived from coal, fossil fuel and hydro-power, whereas the non-commercial energy is mainly

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[1] Based on information obtained from the Department of Atomic Energy.

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supplied by firewood, cow dung and vegetable wastes. Energy in India has been kept at a low price. This low price of energy as well as trend to modernise explains as to why the use of commercial energy has grown so rapidly.[2] Since a significant part of oil consumed in India is being still imported, there was very little prospect for increased use of oil for electricity generation. As regards hydel power, the total potential available in India is limited. The coal deposits of considerable magnitude are very unevenly distributed in India. More than half of the coal deposits are located in Bihar and West Bengal. The transportation of coal and transmission of electricity to various places thus require heavy investment.

India has substantial sources of energy for its immediate needs but the indigenous conventional energy sources would not be sufficient to support a fully industrialised India in the long term. The exploitable sources of energy are unevenly distributed in India. Therefore, fission power can be a rich source of energy particularly in the regions which are bereft of hydro and thermal sources.

A careful analysis indicated that nuclear power was the only answer to the energy problem of the world and in particular for India. India has the needed uranium and thorium resources and their energy potential turns out to be enormous.

India needs to develop nuclear energy for three principal reasons.

(i) As an absolute source of inexpensive energy;
(ii) To provide energy in any part of the country untied to special geographical factors such as the availability of appropriate hydro-electric potential of fossil fuel under ground;
(iii) Along with hydro-electric and thermal power stations to maximise the economy of our grids. Nuclear power stations operate most effectively as base-load stations.[3]

How It All Began

The men largely responsible for the development of India's nuclear power programme during its early years were Pt. Jawaharlal Nehru and Dr. Homi Bhabha. They visualised the crucial role to be played by nuclear energy in future, to bring India out of hunger and poverty. Pandit Nehru considered nuclear power vital for the reconstruction and rehabilitation of an industrially and economically weak nation like ours. While emphasising the role of nuclear energy in the country's development and progress and suggesting its uses only for peaceful purposes, he said in the Constituent Assembly on April 4, 1948:

> . . . atomic energy is a vast source of power that is coming to the world . . . if we are to remain abreast in the world as a nation which keeps ahead of things, we must

[2] David H., *Nuclear Power in India*, New Delhi, 1983, p. 21.
[3] Vikram Sarabhai: "Atomic Power . . . is it uneconomic?" *Economic Times* (Bombay), August 21, 1967.

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develop this atomic energy quite apart from war. Indeed, I think, we must develop it for the purpose of using it for peaceful purposes.[4]

Dr. Homi J. Bhabha, a great scientist having foresight and deep conviction, believed that the atom can be used to translate the vision of Nehru into reality. In 1944 Dr. Bhabha had written to the Dorabji Tata Trust pointing out the need to create proper conditions and financial support to facilitate the development of science in India. He said:

> When nuclear energy has been successfully applied for power production, say a couple of decades from now, India will not have to look abroad for its experts but will find them ready at hand.[5]

The response was positive. The Tata Institute of Fundamental Research (TIFR) came into existence in June 1945 with the aim of carrying on fundamental research in physics, mathematics and allied sciences. The work related to atomic energy was then moved to Trombay. Dr. Bhabha saw this Institute as the cradle of our atomic energy development for peaceful purposes.

Bhabha's Vision

When nuclear energy was thought of only in terms of destruction, Bhabha had the courage to strike a different note. He realised that self-reliance had to be the logical outcome of India's nuclear policy. He also realised that a policy of self-reliance would succeed only if there are enough men and women capable of meeting the challenge. His effort was to bring out the hidden talents. The result is a development, unparalleled in the history of science and technology.

Three-Tier Power Programme

Bhabha had proposed the following three stages in the country's atomic energy development for peaceful purposes:

(i) Building of heavy water moderated reactors which could produce power as well as plutonium needed to start the breeders;
(ii) Utilising the plutonium produced from first stage reactors in the fast breeders. This stage will continue until suitable thorium-uranium-233 reactors become available; and
(iii) To run stage II type breeders on a thorium feed to produce uranium-233 and run the second type of breeders on the thorium-uranium-233 cycle.

Self-reliance has been the basic principle of India's nuclear programme. The country entered the field of nuclear research comparatively at a later stage than the advanced countries. However, thanks to the untiring efforts of Dr. Bhabha and Pt. Nehru, it was possible to create a pool of scientific manpower, matching the best anywhere in the world.[6]

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[4] *C. A. Debates (Legislative)*, April 6, 1948, pp. 3333–3334.
[5] *Ten Years of Atomic Energy in India* (1954–64), Department of Atomic Energy, Government of India, p. 4.
[6] G. G. Mirchandani and P. K. S. Namboodiri: *Nuclear India—A Technological Assessment*, New Delhi, 1981, pp. 32–33.

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EVOLUTION OF NUCLEAR ENERGY PROGRAMME IN INDIA

India's nuclear programme was the result of Pt. Nehru's world view and his passion for peace. It was the product of a deep and long range of thinking by men who were associated with the struggle for independence. They aspired to employ this new source of power along with conventional sources to solve the problems of backwardness and poverty. Science and technology, it was felt, would enable the country to get a larger output of commodities and services from its sources of men and material. The harnessing of vast natural resources and manpower with the help of modern technology could not only restore the economic health of the country, it could be instrumental in catching up with the advanced countries.[7] Thus, the nuclear programme of India was formulated to meet the fundamental problems confronting the newly born nation.

After the establishment of Tata Institute of Fundamental Research many steps were initiated to organise men and materials for achieving its objectives. The Atomic Energy Commission was formed on August 10, 1948 under the Atomic Energy Act, 1948. Dr. Bhabha was appointed its first Chairman.

Pandit Nehru, from the very beginning, had emphasised the use of nuclear energy for the development of human life and happiness. In fact, on various occasions he had very categorically stated that the vast potential of atom should be harnessed only for peaceful purposes. He was convinced that the road to recovery and regeneration of India lay in turning our attention to science and technology. But he was not blind to destructive potential of the tremendous power given to man by science. He said:

> On the one hand, the nuclear bomb and the destruction of Nagasaki and Hiroshima illustrates the horrendous revolution that has taken place in military technology and on the other, the application of nuclear energy to peaceful and constructive purposes has opened up limitless possibilities for human development, prosperity and overabundance. This major challenge confronts our times with a choice between co-destruction and co-prosperity and makes it imperative for the world to outlaw war, particularly nuclear war.[8]

India's foreign policy was the result of deliberations of the Indian National Congress prior to independence, and also of Pt. Nehru's world view. It may also be noted that the concluding phase of the second world war had its impact on the formulation of this policy. The war was brought to an end by the use of atom bombs on Nagasaki and Hiroshima. The use of atom bombs demonstrated their destructive capacity. The result was an added emphasis on peace as an objective of foreign policy and growing interest in nuclear energy as a new factor in development. Nehru comprehended the significance of this factor and accordingly shaped the response of India to the use of atomic energy. Replying to the debate on Objectives Resolution in the Constituent Assembly, he said:

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[7] Planning Commission, Government of India: *First Five-Year Plan*, New Delhi, 1952, pp. 412–419.

[8] R. K. Karanjia: *The Philosophy of Mr. Nehru*, London, 1966, p. 65.

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> . . . there is a conflict in the world between two things, the atom bomb and what it represents and the spirit of humanity. I hope that while India will no doubt play a great part in all the material spheres, she will always lay stress on the spirit of humanity and I have no doubt in my mind that ultimately in this conflict that is confronting the world the human spirit will prevail over the atom bomb.[9]

Stressing the imperative need for utilising nuclear energy for peaceful purposes, Pt. Nehru pointed out in the Lok Sabha on May 10, 1954:

> The use of atomic energy for peaceful purposes is far more important for a country like India, that is to say, in a country whose power resources are limited, than for a country like France, an industrially advanced country . . . It is important for a power-starved or power-hungry country like India or most of other countries in Asia and Africa.[10]

On January 20, 1957, while inaugurating India's first Nuclear Reactor, *Apsara*, at Trombay, Pt. Nehru declared very categorically, ". . . that whatever might happen, whatever the circumstances, we shall never use this atomic energy for evil purposes".[11]

Once again Pt. Nehru reiterated peaceful use of nuclear energy while speaking in Lok Sabha on July 24, 1957. He said:

> . . . We are not interested in and we will not make these bombs, even if we have the capacity to do so and that in no event will we use atomic energy for those most destructive purposes. . . . I hope that will be the policy of all future Governments whosoever is in charge.[12]

Explaining this stand further, Pt. Nehru stated in Lok Sabha on August 10, 1960 that,

> . . . no declaration that I make today will necessarily bind people in future, but I do hope that we shall create an atmosphere in the country which will bind every Government in future so that it may not use this power for evil purposes.[13]

Such was the commitment of Pt. Nehru to use the nuclear energy for constructive purpose that even after the Chinese attack in 1962, when the strategic environment had become destabilised, he said in a television interview on May 18, 1964: "We do not make bombs, I do not think we will."[14]

The second Prime Minister of India, late Shri Lal Bahadur Shastri, continued the policy adopted by Pt. Nehru and favoured the use of nuclear technology to promote socio-economic goals of the country. He renounced its use for military purposes.

Expressing his views while opening the plutonium plant at Trombay, Shri Shastri remarked:

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[9] Jawaharlal Nehru: *Speeches*, Sept. 1946–May 1949, Vol. I, pp. 24–25.
[10] *L. S. Debates*, May 1954, c. 7036.
[11] G. G. Mirchandani: *India's Nuclear Dilemma*, New Delhi, 1968, pp. 5–6.
[12] *L. S. Debates*, July 24, 1957, c. 4954.
[13] *L. S. Debates*, August 10, 1960, c. 2010.
[14] G. G. Mirchandani, *op. cit.*, p. 23.

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> We have developed this plant with a view to utilising atomic energy for peaceful purposes. It is essential that this revolutionary technique in atomic energy should be made use of for bettering the lot of the people and changing the face of the world. . . . It is most regrettable that nuclear energy is being harnessed for making nuclear weapons. This constitutes a grave threat to the world peace. . . . India has decided not to enter this race for nuclear armaments. Asian and African nations have many more important things to do in order to build up their own country and countrymen. We cannot afford to spend millions and millions over nuclear arms when there is poverty and unemployment all around us.[15]

On November 24, 1964 in the course of the discussion on the international situation, the opposition members blamed the Government for having failed in "reorienting its policy in the light of the explosion of an atom bomb by China" and urged the Government to embark upon nuclear-based defence installations. Shri Lal Bahadur Shastri, the then Prime Minister, explained that the Government's decision not to produce an atom bomb was not based on moral considerations alone. It was also based on practical and realistic considerations specially keeping in mind the disastrous consequences such a venture would have on the national economy of our country.[16]

In the wake of China's first atomic test explosion in October 1964, a widespread support for the development of nuclear weapon was exhibited. A practical approach to the needs of border defence by developing a powerful deterrent in the shape of actual nuclear weapons was pleaded. In 1965 a group of 86 Congress MPs signed a memorandum urging the Government to revise its atoms for peace policy. However, in spite of all the lobbying in favour of the manufacture of indigenous atom bomb the Government of India's policy remained consistent throughout with the one laid down by late Pt. Jawaharlal Nehru in 1948.

Smt. Indira Gandhi as Prime Minister continued to adhere to the nuclear policy enunciated by her predecessors. She stuck to the policy of peaceful uses of nuclear energy without either conceding to the internal pulls and pressures or bowing to the external pressures to accept an international agreement detrimental to the national interests.

Pandit Nehru's vision of exploiting the atom for furthering socio-economic growth of India was followed. On April 24, 1968 Smt. Gandhi declared in the Lok Sabha:

> We believe that to be militarily strong, it is necessary to be economically and industrially strong. Our programme of atomic energy development for peaceful purposes is related to the real needs of our economy and would be effectively geared to this end.[17]

The then Defence Minister of India told the Lok Sabha on May 2, 1972 that there were no compulsions—internal or external—to deviate from the present

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[15] *Speeches of Prime Minister Lal Bahadur Shastri*, June 1964–May 1965, Delhi, 1965, pp. 16–17.
[16] *L. S. Debates*, November 24, 1964, cc. 1463–65.
[17] *L. S. Debates*, April 24, 1968, c. 2870.

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policy of peaceful use of atomic energy. India was already among the advanced countries in the field of nuclear energy. He declared that technology to conduct underground nuclear explosions for peaceful purposes was also under study.[18]

Peaceful Underground Nuclear Explosion

On May 18, 1974 India carried out an underground nuclear experiment for peaceful purposes. India became the first developing country apart from the Big Five[19] to have carried out such a nuclear experiment. The Government had undertaken this programme to keep itself abreast of developments in this technology particularly with reference to its use in the field of mining and earth moving operations. It had no intention of producing nuclear weapons. The then Prime Minister, Smt. Indira Gandhi, reiterated at a news conference on the evening of 18 May that the test formed a part of the study of peaceful uses of atomic energy; that the country was committed to its use for constructive purposes.

The experiment brought spontaneous public and press reactions both in the country and abroad. To allay the doubts raised at various quarters, Smt. Gandhi, in an interview with the *Newsweek* correspondent, clarified that there was difference between a nuclear country and a nuclear-weapons country. India never wanted to become a nuclear-weapons country and use this knowledge or this power for any other purpose than peaceful purposes. It was not to strengthen and create a fear or pride, or prestige or any of these emotions.

Spelling out India's peaceful intention behind the underground nuclear test, the then External Affairs Minister, Shri Swaran Singh, rebutted overt and covert charges of India becoming a nuclear-weapons state, in the UN General Assembly on September 26, 1974. He said:

> Our underground peaceful nuclear explosion must be seen in the context of our endeavour at the national level, to develop our resources and capacities to the fullest extent for the benefit of our people. . . . The non-aligned countries had also stressed this in their declaration at Lusaka conference in 1970. We have no intention of making nuclear weapons.[20]

In reply to a question in Lok Sabha, Smt. Indira Gandhi informed the House on February 24, 1983 that the policy of Government of India was to utilise atomic energy for peaceful purposes and it continued to be the same.[21]

When Shri Morarji Desai was Prime Minister, the Nuclear Policy of his Government was enunciated by him on March 23, 1977. He said that India would utilise atomic energy for peaceful purposes only and would in no circumstances manufacture nuclear weapons.

On April 26, 1979 the then Defence Minister, Shri Jagjivan Ram, responding to a Calling Attention Motion on the reported build-up of arms by Pakistan,

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[18] *L. S. Debates*, May 2, 1972, c. 371.
[19] These are the USA, USSR, UK, France and China.
[20] *Deccan Herald*, Bangalore, September 7, 1974.
[21] *L. S. Debates*, February 24, 1983, c. 56.

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said in the Rajya Sabha that India was continuing the nuclear policy developed by the previous government which was a rational policy. He further said that India would carry on its programme of nuclear energy research and development for peaceful purposes.[22]

On May 7, 1979, Shri Morarji Desai had very categorically told the members of Parliament at a meeting of the Consultative Committee of Parliament attached to the Department of Atomic Energy, Space and Electronics that as long as he was Prime Minister, he would not go for it (bomb).[23]

Prime Minister Shri Rajiv Gandhi has emphasised the policy of use of nuclear power for peaceful purposes, as laid down by his predecessors.

On May 21, 1985 speaking at a banquet hosted in his honour in Kremlin, USSR, Shri Rajiv Gandhi pointed out that in the nuclear age, peace should be the basic yearning of all the peoples of the world. It is dangerous to use atomic power for military purpose. It may prove to be a boon for mankind if used for constructive purposes.[24]

In an interview to a French political weekly *Le Nouvel Observateur* in Paris on June 7, 1985, Shri Gandhi said that India would always like to continue with its policy of using atomic energy for peaceful purposes.[25]

The Indian political leaders and scientists are of the view that the nuclear energy is an important asset not only to the present needs of industrial growth but also as an instrument of futuristic technology indispensable to take India into the twenty-first century.

INSTITUTIONAL FRAMEWORK AND INFRASTRUCTURE FOR DEVELOPMENT OF NUCLEAR ENERGY

Initially the institutional framework and scientific and technological infrastructure for extensive research and development necessary to reap the benefits of new source of energy were non-existent in India. The Government was well aware of the potential contribution that nuclear energy could make towards the country's economic progress. The Government, therefore, initiated nuclear programmes, immediately after independence. Its urgency was explained by Pt. Nehru in the following words:

> If we do not set about it now, taking advantage of the processes that go towards the making of atomic energy and join in band of scholars and researchers who are trying to develop it, we will be left behind . . . the State should give every facility for this development.[26]

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[22] *R. S. Debates*, April 26, 1979.
[23] *The Statesman*, New Delhi, May 8, 1979.
[24] *The Hindustan Times*, New Delhi, May 22, 1985.
[25] *Indian Express*, June 7, 1985.
[26] *Constituent Assembly Debates (Legislative)* (CAD), Vol. V, No. 1, April 6, 1948, p. 3315.

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Atomic Energy Act, 1948

The Atomic Energy Bill was moved in the Constituent Assembly with a view to providing for the development and control of atomic energy and for purposes connected with it. The Bill was passed after a lively discussion. The Atomic Energy Act, 1948, entrusted the control of atomic energy exclusively to the Central Government and provided a legislative framework for the initiation of India's nuclear programme. It sought to formulate policy guidelines and enable the Executive to adopt measures for the promotion of the nuclear energy programme. It also provided a legislative sanction indispensable in a parliamentary democracy. The Act therefore was an important legislative measure in the evolution of the nuclear policy of India. It served its purpose for fourteen years after which it was replaced by the Atomic Energy Act, 1962.[27]

The Atomic Energy Act, 1962

This is a comprehensive legislative measure dealing with the nuclear programme of India. It was passed by Parliament in 1962 in view of the developments in the field after the enactment of the 1948 Act. It empowered the Central Government:

(1) to produce, develop, use and dispose of atomic energy and carry out research into any matter connected therewith;
(2) notwithstanding anything contained in the Electricity (Supply) Act, 1948, the Central Government shall have authority:
    (a) to develop a sound and adequate national policy in regard to atomic power and to coordinate such policy with the Central Electricity Authority and the State Electricity Boards constituted under Sections 3 and 5, respectively of that Act and other similar statutory corporations concerned with the control and utilisation of other power resources;
    (b) to implement schemes for the generation of electricity in pursuance of such policy and to operate atomic power stations in the manner determined by it in consultation with the Boards or Corporations concerned, with whom it shall enter into agreements regarding the supply of electricity so produced;
    (c) to fix rates for and regulate the supply of electricity from atomic power stations with the concurrence of the Central Electricity Authority; and
    (d) to enter into arrangements with the Electricity Board of the State in which an atomic power station is situated for the transmission of electricity to any other State.[28]

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[27] K. K. Pathak: *Nuclear Policy of India—Third World Perspective*, New Delhi, 1980, p. 3.
[28] *Acts of Parliament*, 1963, pp. 175–190, cited in Pathak: *op. cit.*, pp. 30–31.

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The Atomic Energy Commission (AEC)

The Atomic Energy Act, 1948 paved the way for the creation of an institutional framework to pursue the nuclear programme with vigour. The Atomic Energy Commission was constituted on August 10, 1948 to launch a full-fledged atomic energy programme.

However, in 1958, as a result of past experience and developments, and after careful consideration the Government of India decided to reconstitute the AEC, investing it with full executive and financial powers and replacing the Commission set up in 1948.

The Commission was entrusted with the following functions:

(a) to formulate the policy of the Department of Atomic Energy for the consideration and approval of the Prime Minister;
(b) to prepare the budget of the Department of Atomic Energy for each financial year and get it approved by the government; and
(c) to implement the policy of the government in all matters concerning atomic energy.

Department of Atomic Energy (DAE)

As a result of the activities of the DAE and availability of scientific and technical personnel, the feasibility of embarking upon a full-fledged atomic energy programme was felt by 1954. On August 3, 1954, a separate Department charged solely with the development of atomic energy for peaceful purposes was set up. Its headquarters was located in Bombay.

The activities of the Department have grown rapidly since then with the result that today there are a number of industrial and research establishments spread throughout the country under the administrative control of the Department of Atomic Energy.[2]

Research and Development

Under the aegis of this Department, research and development work is being carried out at three research centres, namely, the Bhabha Atomic Research Centre at Trombay (Bombay), the Indira Gandhi Centre for Atomic Research, Kalpakkam (Tamil Nadu) and Centre for Advanced Technology, Indore (Madhya Pradesh).

Bhabha Atomic Research Centre

The Centre was set up in 1957 as the Atomic Energy Establishment, Trombay. In memory of its founder, it was renamed in 1967. BARC is the premier national centre for R&D work in nuclear energy and related disciplines. The facilities available at Trombay includes research reactors CIRUS (40 MWt) and

[2] Based on information obtained from the Department of Atomic Energy.

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APSARA (1 MWt). In May 1984, a Zero energy fast critical facility (PURNIMA II), using U-233 as fuel became operational. Besides these reactors, a 5.5 MeV Van-de-Graff accelerator is also available for experimental research in physics. A large research reactor DHRUVA (100 MWt) has been built indigenously. In collaboration with TIFR, the Centre set up a 14 MV pelletron acceleration plant and it started commercial operation in 1988. In addition to the various laboratories for carrying out research in physics, chemistry, biology, agriculture, medicine, food technology, nuclear engineering, isotopes technology, metallurgy, etc., the Centre also has Uranium Metal, Uranium Fuel Fabrication Plant and Fuel Reprocessing Plant. BARC has set up a Beryllium Plant and a radiopharmaceuticals laboratory ISOPHARM at Vashi. Fuel Reprocessing Plant (PREFRE) and Nuclear Waste Vitrification Plant at Tarapur are also parts of BARC. The *Variable Energy Cyclotron Centre* at Calcutta is a national facility for advanced work in nuclear physics, nuclear chemistry, production of isotopes for various applications and radiation damage studies on reactor materials. The *Seismic Station* at Gauribidnur, near Bangalore set up in 1965, helps in the detection and identification of underground nuclear explosions. The Nuclear Research Laboratory at Srinagar and the High Altitude Research Laboratory at Gulmarg conduct research in atmosphere physics and cosmic ray physics.

BARC activities cover a wide range of areas such as physics, chemistry, engineering, metallurgy, fuel reprocessing, fuel fabrication, radioisotopes, waste management, electronics, instrumentation, lasers, biology agriculture, food technology, radiation medicine, etc. The Centre has developed a number of technologies some of which have been transferred to industry for commercial exploitation. The Radiation Medicine Centre at Bombay uses radioisotopes for diagnostic and therapeutic applications. In the field of radiopharmaceuticals, production facilities exist at Vashi, Bangalore and Hyderabad.

BARC also conducts a countrywide personnel monitoring services for evaluation of radiation exposures of workers in institutions using radiation sources.

Board of Radiation and Isotopes Technology

To run the activities related to radiation and Isotopes Technology on commercial lines, a Board of Radiation Isotopes Technology (BRIT) has been set up on March 1, 1988.

Radioisotopes and related equipment have been produced indigenously at Trombay for use in medicine, agriculture and industry. About 400 radioactive products and labelled compounds are produced and every year about 50,000 consignments of radioisotopes and equipment are supplied to users in the country and abroad. The radioisotopes are used in a number of diseases, industrial radiography, development of high yielding and disease resistant mutants of rice, wheat, groundnut, pulses etc. A commercial radiation sterilisation plant ISOMED at Trombay provides sterilisation services to the medical industry in the country.

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Indira Gandhi Centre for Atomic Energy

Indira Gandhi Centre for Atomic Energy Research was set up in 1971 at Kalpakkam (Tamil Nadu) to carry out research and development pertaining to fast reactors technology. The major facilities at the Centre is the indigenously constructed 40 MW (thermal)/13 MW (electrical) Fast Breeder Test Reactor (FBTR) which attained criticality in October 1985. Core of the reactor uses indigenously developed mixed carbide fuel. FBTR is a major step in the country's Nuclear Power Programme. It has paved the way for using our vast thorium resources. The Centre is drawing up a plan to design and build a 500 MWe prototype fast breeder reactor (PFBR).

Centre for Advanced Technology

The Centre has been set up in 1984 at Indore, Madhya Pradesh, to spearhead research in high technology fields such as fusion, laser and accelerators. A Synchroton Radiation Sources, being set up at the Centre, will be a major research facility in the country.

Nuclear Power

The country is self-reliant in nuclear power technology and is capable of operating complete nuclear fuel cycle. The total installed nuclear power generation capacity of the country is 1230 MWe which constitutes about 2.6 per cent of the total power generation capacity of the country.

DAE now aims at installing 10,000 MW of nuclear power generating capacity by AD 2000 which would then represent about 10 per cent of the total electrical generating capacity in the country.

To implement the nuclear generation programme of the country on commercial lines, the Nuclear Power Board was converted to the Nuclear Power Corporation of India Ltd. (NPCIL). The Corporation started functioning on September 18, 1987 and was formally inaugurated on October 16, 1987. NPCIL is at present operating three nuclear power stations; 2 × 160 MW Tarapur Atomic Power Station at Tarapur near Bombay, 2 × 220 MW Rajasthan Atomic Power Station at Rawatbhatta, near Kota and 2 × 235 MW Madras Atomic Power Station at Kalpakkam, near Madras. Another 2 × 235 MW nuclear power station is at an advanced stage of construction at Narora in Uttar Pradesh. Construction work on the fifth 2 × 235 MW nuclear power station at Kakrapar in Gujarat is also in progress. Work has also commenced on two more 2 × 235 MW stations at Kaiga in Karnataka and Rawatbhatta in Rajasthan.

The Tarapur Atomic Power Station uses enriched uranium fuelled, light water cooled reactor known as boiling water reactor while all the subsequently built stations use natural uranium fuelled, heavy water moderated and cooled reactors (PHWRs).

Detailed designs and engineering of 500 MWe PHWR system, are in progress. Work on six 500 MWe PHWR units is proposed to be commenced during the Seventh Plan.

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Heavy Water Project

There are five heavy water plants at Vadodra (Gujarat), Rawatbhatta (Rajasthan), Talcher (Orissa), Tuticorin (Tamil Nadu) and Thal (Maharashtra), besides the small heavy water plants operating at Nangal (Punjab). Two more heavy water plants are being set up at Manuguru (Andhra Pradesh) and Hazira (Gujarat). The Rawatbhatta and Manuguru plants are based on indigenous technology developed at BARC, which uses hydrogen sulphide as the feed material.

Atomic Minerals

The Atomic Minerals Division (AMD) is one of the first units started by the Atomic Energy Commission (AEC). With its headquarters at Hyderabad, the Division is now a multidisciplinary organisation entrusted with exploration, prospecting, and related research and development activities for atomic mineral resources required for the nuclear power programme.

Nuclear Fuel

The Nuclear Fuel Complex (NFC) at Hyderabad fabricates nuclear fuel for the power reactors and produces zircolay products and seamless steel tubes. NFC also produces certain special materials for critical industries and very high purity materials needed by electronics industry. The complex consists of different plants for the conversion of yellow cake into ceramic grade natural uranium oxide, enriched uranium hexafluoride into enriched oxide, zircon sand to zircolay components through stages of zirconium oxide, zirconium sponge, and zircolay billets, etc., uranium dioxide to sintered and ground pellets and finally to fuel assemblies. Production of components such as blankets fuel containing thoria pellets, nickel and steel reflector assemblies and special assemblies required for fast breeder test reactor and prototype fast breeder reactor, form parts of the fuel fabrication programme at NFC. The Special Material Plants at the complex is a unique facility in the country for production and supply of very high (4n and 5n) purity materials required for the electronic and other industries. Plants have also been set up for the production of seamless steel tubes and other special tubes. Kob order for conversion of the billets to the requisite, sections and mother pipes to finished tubular products for special applications are executed for the private and government organisations. A full-fledged quality control laboratory of NFC caters to the needs of inprocess and final quality control of components and materials supplied. Special control measures are ensured for effective effluent management.

Atomic Energy Regulatory Board (AERB)

This is a functionally autonomous body reporting to the Atomic Energy Commission.

Set up in 1985, the Atomic Energy Regulatory Board (AERB) carries out

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regulatory and safety functions, as envisaged under the Atomic Energy Act 1962, covering all the DAE and radiation installations operated by medical, industrial and research users in the country.

Crisis Management Group

Formed in October 1987, the Group is responsible for ensuring that each of the DAE nuclear installations is adequately prepared and equipped to deal with any emergency situation involving radiation/conventional hazards which may arise at such installations, and during transportation of radioactive consignments.

Public Sector Undertakings

There are three public sector undertakings under the administrative control of DAE viz. the Indian Rare Earths Limited (IRE), the Uranium Corporation of India Limited (UCIL), and the Electronics Corporation of India Limited (ECIL).

IRE is a Government company functioning since 1950. The company has two mineral sands separation plants at Manavalakurichi and Chavara, and a Rare Earths Plant at Alwaye. IRE has also set up a Rs. 130 crore project at Chhatrapur, Orissa, known as Orissa Sands Complex (OSCOM), for production of various minerals value added products. The project has commenced production with effect from October 1986. The company is also managing a Thorium Plant at Trombay.

Electronics Corporation of India Limited

ECIL was set up at Hyderabad in 1967 to manufacture electronic systems, instruments and components developed at BARC. The corporation has pioneered the production of a varied range of sophisticated electronic systems, instruments and components, based primarily on indigenous technology.

Uranium Corporation of India Limited

Formed in 1967, UCIL is responsible for mining and milling of uranium ore. It is operating uranium mines at Jaduguda and Bhatti and indigenously designed uranium mill at Jaduguda. The corporation has set up a uranium recovery plant at Surda, Rakha and Mosaboni. A by-product recovery plant has also been set up UCIL to recover accessory minerals such as copper, magnetite and molybdenum.

The mill at Jaduguda has been expanded in 1987–88 to treat increased quantity of ore. The existing uranium mine at Jaduguda is being deepened to mine ore located in deeper levels. Four new projects have been taken up for implementation and consist of modernisation of uranium recovery plants at Surda, expansion of Uranium Recovery Plant at Mosaboni and Upgradation of Effluent Treatment System at Jaduguda.

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With a view to meeting the increasing demand of uranium for the nuclear power reactors, the company has prepared the project report for setting up a uranium mine at Narwapahar and Turamdih and a uranium mill at Turamdih (all in Bihar). Other uranium deposits identified are Bodal in Madhya Pradesh and Bagjata and Turamdih West in Bihar.

Financial Support

The Department has been funding substantially the autonomous and scientific institutions under its administrative control. These are the Tata Institute of Fundamental Research, Bombay; Tata Memorial Centre, Bombay; Saha Institute of Nuclear Physics, Calcutta, Institute for Physics, Bhubaneswar, and the Institute of Mathematical Science, Madras.

Tata Institute of Fundamental Research

Founded in 1945 as a Centre for pursuit of fundamental research in mathematics, theoretical physics, cosmic rays and nuclear physics, the research activities of the Institute have now expanded to areas such as astronomy and astrophysics, chemical physics, molecular biology, solid state physics, solid state electronics and computer science. The facilities being operated by the Institute are the Ballon Facilities at Hyderabad, the Radio Astronomy Centre and the National Image Processing Facilities for Astronomy at Ootacammund, and 500 MHz FT NMR national facilities at TIFR, Bombay. The Institute, in addition, manages activities of the Homi Bhabha Centre for Science Education (HBCSE) at the Basic Dental Research Project.

Tata Memorial Centre

Located at Bombay, Tata Memorial Centre comprises the Tata Memorial Hospital and the Cancer Research Institute. The Centre is the foremost in the country in education, comprehensive care of cancer patients and cancer research. The hospital is a post-graduate Centre affiliated to the Bombay University.

Saha Institute of Nuclear Physics (SINP)

The SINP at Calcutta was formally opened on January 19, 1950. The Institute provides facilities in advanced research in the field of experimental and theoretical nuclear physics, solid state, atomic and nuclear physics, plasma physics, high energy physics, crystallography, molecular biology, biophysics, nuclear chemistry and instrumentation.

Institute of Physics, Bhubaneswar

Established in 1974, the Institute of Physics, Bhubaneswar was a registered society funded by the Government of Orissa till March 1985. Therefore, it became one of the fully aided institute of DAE. The institute provides facilities

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in advanced research in the fields of theoretical solid state, nuclear and high energy physics, and experimental solid state physics. It is acquiring a 3 MV tandem pelletron accelerator for experimental research in atomic, nuclear, solid state and applied physics.

The Institute of Mathematical Science, Madras provides facilities for research in mathematics, high energy physics, statistical mechanics and stochastic process besides other related academic activities.

The Department of Atomic Energy has also been the main source of funding the Mehta Research Institute Allahabad where the main thrust is on combinatorial mathematics related computer science, digital electronics and corresponding basic mathematics. Financial assistance is also given to the National Board for Higher Mathematics.

Board of Research in Nuclear Science (BRNS)

The BRNS of the Department encourages research in science and engineering and considers for support research schemes in the areas related to the Department.

International Cooperation

India has been offering training facilities, fellowships, scientific visits etc., and makes available the services of its scientists for expert assignments both through the IAEA and the countries with which we have entered into bilateral agreements for cooperation in the field of peaceful uses of nuclear energy.

NUCLEAR ENERGY PROGRAMMES: AN OVERVIEW

India has travelled a long way since Dr. Bhabha along with half-a-dozen scientists laid the foundation of India's nuclear programme dedicated to use atomic developments for constructive purposes. As a result of efforts of these early pioneers, the country today stands at the top among third world countries in the field of nuclear technology. The IAEA has consistently designated India to its Board of Governors as one of the countries most advanced in the technology of atomic energy including the production of source materials.

India consciously chose the slower and harder path of development aimed at self-reliance. The strategy of our programme was based on the development of a cadre of scientists and engineers in our R&D institutions, which grew gradually with the development of indigenous know-how in the various fields.

While resorting to imports of technology we did so on a selective basis channelised through our R&D base. We took care not only to fully assimilate this technology but to adapt it to our own conditions and requirements and further diversify and improve upon it without resorting to repeated imports of technology.[10]

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[10] H. N. Sethna, Atomic Energy and Self Reliance Efforts: *Nuclear India*, Vol. 13, No. 6, 1980, p. 8.

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In formulating the strategy for nuclear development, "we had to take into account that while our uranium reserves are rather limited, our thorium reserves are amongst the largest in the world. We thus chalked out a programme which was not based on the model of the western countries but tailored to our own conditions. We continue with the development of natural-uranium fuelled reactors not only because of our preference for a reactor system which can be operated on indigenous resources and technology but also because the uranium utilisation is more efficient and larger quantities of plutonium can be produced in such reactors."[1]

A stage has now been reached when it is possible to plan for a quantum jump in nuclear capacity in view of the availability of adequate uranium and expertise developed in setting up of plants for nuclear fuel heavy water, spent fuel reprocessing and waste management and, most important of all, the capability of local industry.

Another stride which India has made in developing nuclear capability is an indigenously researched and developed fuel for the FBTR—a plutonium rich mixed carbide fuel which dispenses with the enriched uranium-based fuel.

A mixed oxide fuel manufacturing facility had been commissioned during the period 1973–74 at Trombay by expanding and augmenting the existing laboratory at the Radiometallurgy Division of BARC. This exercise of indigenous fuel fabrication has now generated confidence to manufacture fuel for larger future prototype fast breeder reactor (PFBR).

Work is going on for further expansion of fuel fabrication capacity. The indigenous programme for fabrication of fuel and components will meet the requirements of the programme to the high standard of quality established in the past.

A target of generating 10,000 MW of nuclear power by the end of the century has been established keeping in view the country's power needs and known uranium resources. Nuclear power contributes roughly 2.6 per cent of the total electrical capacity in the country at present and is expected to go upto 10 per cent by the end of the century.

India is now among the very few countries which can build power reactors. India's other major achievements include designing, building and commissioning U-233 reactors, the type that will be the mainstay of the country's future nuclear programme. The first nuclear reactor named PURNIMA II using U-233, became critical at BARC on May 10, 1984. The long range programme for the nuclear power in the country is expected to be based on conversion of thorium to U-233 and its use in the thermal or fast reactors. This reactor, therefore, is the first stage in the utilisation of thorium of which India has one of the world's largest reserves.

Teething problems in heavy water production have been overcome and confidence has been built up to meet indigenously the heavy water needs of the nuclear power generating programme which aims at generating 10,000 MWe of nuclear power by the year 2000.

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[1] *Ibid.*, pp. 3 and 6.

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The Department has drawn up a perspective plan for generating matching capacity for the production of heavy water for attaining the 10,000 MWe power generation capacity which will require 13,000 tonnes of heavy water by the end of century. In the immediate future, one more 110 tonne heavy water plant, similar to the Thal-Vaishet plant, is proposed at Hazira, Gujarat.

India was designated to the IAEA board of Governors for the 31st year in succession as one of the globally most advanced countries in the technology of atomic energy including the production of source materials. This underscores her leading status in this sophisticated technology.

India continues to offer training facilities, fellowships, scientific visits etc. to the member states of IAEA under its technical assistance programme. India also provides training facilities to countries with which bilateral agreements are made for peaceful uses of nuclear energy and the services of Indian experts under the agreements.

CONCLUSION

In the context of future energy requirements for industrial growth, nuclear energy assumes great importance in providing a viable solution. Presently known, inferred and indicated reserves of uranium will permit the installation of a nuclear power generation capacity of 15,000 MWe in pressurised heavy water reactors (PHWR). The plutonium derived from operating the PHWRs will effectively be deployed, along with the depleted uranium 238, in the fast breeder reactors. This will permit more efficient exploitation of the energy potential in uranium. Following the Fast Breeder Test Reactor (FBTR) the focus of effort will progressively shift towards the development of a 500 MWe prototype Prototype Fast Breeder Reactor (PFBR). Feasibility and preliminary design reports in this regard have already been prepared.

All the necessary support for the country's future nuclear programme is now within the competence of Indian industries.[12]

[12] Based on information obtained from the Department of Atomic Energy.

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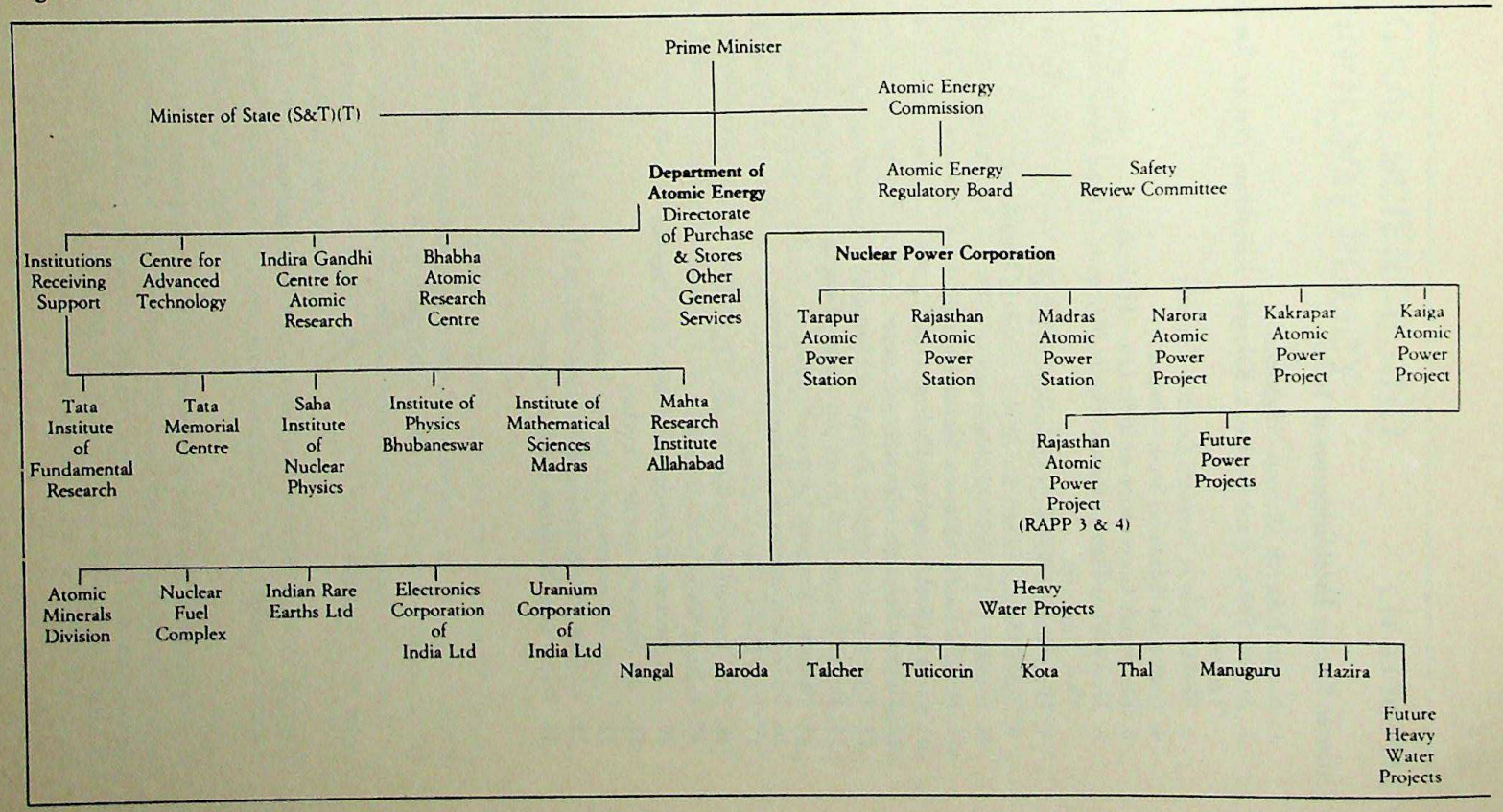
APPENDIX 11.1

Organisational Chart



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APPENDIX 11.2

Atomic Energy Establishments in India

1. Atomic Minerals Division—Hyderabad
2. Atomic Power Stations—Kaiga, Kakrapar, Kalpakkam, Narora, Rawatbhatta, Tarapur
3. Bhabha Atomic Research Centre—Trombay
4. Centre for Advanced Study—Indore
5. Electronics Corporation of India Ltd.—Hyderabad
6. Heavy Water Plants—Baroda, Hazira, Manuguru, Nangal, Rawatbhatta, Talcher, Thal, Tuticorin
7. High Altitude Research Laboratory—Gulmarg
8. Indira Gandhi Centre for Atomic Research, Kalpakkam
9. Institute of Physics—Bhubaneswar
10. Mineral Sands—Chavara, Manavalakurichi
11. Nuclear Fuel Complex—Hyderabad
12. Nuclear Research Laboratory—Srinagar
13. Orissa Sands Complex Project—Chhatrapur
14. Power Reactor Fuel Processing Plant—Tarapur
15. Radiation Medicine Centre—Bombay
16. Radiopharmaceuticals Laboratory—Vashi
17. Rare Earths Plant—Alwaye
18. Saha Institute of Nuclear Physics—Calcutta
19. Seismic Station—Gauribadanur
20. Tata Institute of Fundamental Research—Bombay
21. Tata Memorial Centre—Bombay
22. Uranium Corporation of India—Jaduguda
23. Variable Energy Cyclotron Centre—Calcutta
24. Waste Immobilization Plant—Tarapur

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12

NATIONAL SCIENCE AND TECHNOLOGY POLICY

INTRODUCTION

The second half of the present century has been the period when Governments, *particularly those of the developing countries*, have paid increasing attention to science and technology on the assumption that an indigenous scientific and technological base would bring economic and social development. Indeed, the spectacular achievements in science and technology have brought about unprecedented economic growth and social transformation in the industrialised countries and this has led to the creation of a favourable climate for science and technology being made a part of the national endeavour in developing countries as well. It has become necessary for them to harness their scientific and technological efforts to achieve their goals. India too has followed a conscious policy for the development of science and technology for solving her national problems. Attempts have been made in the direction of integrating the development of science and technology with the national plan.[1]

SCIENCE AND TECHNOLOGY POLICY IN EARLY YEARS OF INDEPENDENCE

As in many other areas of economy, polity and society, Jawaharlal Nehru established the basic framework for science and technology in India. Others who have come after him have marginally modified it, but the fundamental lines of policy were laid down by him, and persist in their broad features. It is, then, natural that the "Nehru model" in science and technology, as in so many other fields, compels one's attention.

In the industrial technological sphere, on the basis of actual policies adopted and the articulated rationale for them, it can be assumed that Nehru's thinking proceeded somewhat as follows:

> India is both an extremely poor, underdeveloped country as well as a country weak in defence capabilities, while at the same time it is a major and potentially a great power. These two facts then determine the first order goals for the country, which are: first, India must raise the living standards of its population, and equally, second, India must provide for its national security as well as for a role in the world

[1] V. P. Kharbanda: *The Magic Wands of Science Technology* (PIB, Republic Day Feature, 1983).

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structure of power commensurate with its size and importance. At the second order level, the route to these major goals lies in the accomplishment of rapid industrialisation in India. Consistent with the overall thrust of India's national goals in terms of national security, role status in the world, and alleviation of poverty and improvement of living standards, India's industrial strategy ought to aim at the building of a self-reliant industrial system. Although a self-reliant industrial system must be India's long-term objective, the short-term objectives have to be somewhat different. It would be ideal, of course, if the industrial system could be built on the basis of indigenously developed technology but, given the absence of a capital goods base and the utter lack of research and development capabilities within the country, this would be a long drawn out and time-consuming process whereas India cannot afford to wait to push through its industrialisation programme. Accordingly, India must rely on a liberal import of technology and, given the wide scope of industrialisation necessary, do so on a broad front. Where feasible, India should go in for the licensing of such technology but, where necessary, foreign investment may be allowed, especially given the shortage of foreign exchange resources. But the terms and conditions for the licensed import of technology and the entry of foreign investment must be consistent with India's long-term objective of building a self-reliant industrial structure.[2]

Science and technology policy, as a coherent and systematic design encompassing the diverse activities and institutions in the field, seems to have been lacking in India in the early years of independence. No doubt, policies relating to different sectors of science and technology were implemented, and there were repeated declarations of high importance the government attached to science and technology, but there seems to have been no enunciation of an overall policy setting out the aims and priorities of the government and how they were related. Despite this, there was nonetheless a rational and coherent strategy behind the various policies and actions pursued in the field of science and technology. Perhaps this technological strategy called the Nehru Model, encompassing the different policies and actions, adds upto a compelling and powerful model.[3]

RESOURCE ALLOCATION FOR SCIENCE AND TECHNOLOGY

The importance the government of independent India attached to science and technological self-reliance can be gauged from the drastic increases in the allocation of budgetary resources for the purpose. In 1948–49 a total sum of Rs. 1.1 crore was spent on Research and Development (R&D) in the Central sector and the private sector spend about Rs. 0.15 crore. By 1950–51, the Central sector investment on R&D rose to Rs. 4.68 crore[4] and by 1985–86 Central sector investment of about Rs. 1696.22 crore, State sector investment of about Rs. 200.31 crore and private sector investment of about Rs. 2841.1 crore were

[2] Baldev Raj Naya: *India's Quest for Technology Independence*, Vol. I, pp. 134–135, New Delhi, Lancers Publishers, 1983.
[3] *Ibid.*, p. 239.
[4] *Ibid.*, pp. 243–244.

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expected to be made for the R&D and related scientific and technological activities.[5]

The financial resources provided in the successive Five-Year Plans are shown in Table 12.1.[6]

Table 12.1
Financial Resources of Five-Year Plans

(Rs. in crore)

	Plan	*Non-Plan*	*Total*
1st Plan (1951–56)	14	6	20
2nd Plan (1956–61)	33	34	67
3rd Plan (1961–66)	71	73	144
4th Plan (1969–74)	142	231	373
5th Plan (1974–79)	693	688	1381
6th Plan (1980–85)	1960	1447	3407
6th Plan (1980–85) (Scientific Agencies only)	1158	984	2142
7th Plan (1985–90) (Scientific Agencies only)	2466*	2347	4813

* Out of this amount, Rs. 2303.43 crore were allotted to Centre and Rs. 162.57 crore to States and Union Territories.

For detailed outlays in the 7th Plan for the various Scientific Agencies, the anticipated expenditure during 6th Plan, etc., please see Appendices 12.1 A to C.

The total national expenditure on S&T activities from 1985–86 to 1987–88 (3 years) was Rs. 8393 crore of which Rs. 7814 crore were spent on R&D projects and the balance amount on S&T related activities. The share of the national S&T expenditure by Central sector was Rs. 6674 crore, State sector Rs. 767 crore and Private sector Rs. 952 crore. Twelve major S&T Agencies of the Central Government spent Rs. 4244 crore of the total R&D expenditure. Ministry of Defence accounted for 37 per cent of the expenditure, followed by Department of Space (17 per cent), CSIR (11 per cent), Department of Atomic Energy (10 per cent), ICAR (10 per cent), Department of Science and Technology (6 per cent) and Department of Environment (4 per cent). In the first two years of the Seventh Five-Year Plan (1985–87), a sum of Rs. 574.96 crore was spent on basic research, Rs. 1209.72 crore on applied research, Rs. 1316.63 crore on experimental development and Rs. 981.62 crore on other S&T activities. During 1985–87 a sum of Rs. 1285 crore was spent on research in natural sciences, Rs. 1919 crore on engineering and technology, Rs. 219 crore on medical sciences, Rs. 631 crore on agricultural sciences and Rs. 3 crore on other fields.[7]

[5] Department of Science and Technology: *Research and Development Statistics*, 1984–85, p. 47.

[6] V. Rao Aiyagari and P. V. Lavakare in *Policy Making in Government* (edited by K. D. Madan, *et al.*) (Publications Division, Ministry of Information and Broadcasting, Government of India, April 1982); and *Midterm Appraisal Sixth Five-Year Plan*, p. 132; and information received from the Planning Commission.

[7] Council of Scientific and Industrial Research: *Status Report on Science and Technology in India—1988*, New Delhi, 1988, pp. 9–10.

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SCIENTIFIC POLICY RESOLUTION OF 1958

India was the first country in the world to create a Ministry of Scientific Research and Natural Resources, in 1951, for organising and directing scientific research for national development. The enthusiasm with which the Ministry pursued the task of promotion of science and technology is borne out by its creation of agencies for research in specialised areas, strengthening of the existing ones, establishment of laboratories for research and development, and the involvement of scientists and technologists in advisory capacity with numerous committees on science, technology and industry. Further, each Five-Year Plan document also emphasised the role of S&T in economic and social transformation of the country. However, the most important step was the adoption of the Scientific Policy Resolution by the Indian Parliament in 1958.[8]

The Scientific Policy Resolution announced on March 4, 1958 and read out by the late Prime Minister, Pandit Jawaharlal Nehru, in the Lok Sabha on March 13, 1958 rightly states, *inter alia*, that "science and technology can make up for deficiencies in raw materials by providing substitutes, or, indeed, by providing skills which can be exported in return for raw materials. In industrialising a country, a heavy price has to be paid in importing science and technology in the form of plant and machinery, highly paid personnel and technical consultants. An early and large scale development of science and technology in the country could, therefore, greatly reduce the drain on capital during the early and critical stages of industrialisation."

The scientific policy of the Government aimed in general "to secure for the people of the country all the benefits that can accrue from the acquisition and application of scientific knowledge."

It was also stated in the Policy Resolution that the Government have decided "to pursue and accomplish these aims by offering good conditions of service to scientists and according them an honoured position, by associating scientists with the formulation of policies, and by taking such other measures as may be deemed necessary from time to time."*

The aims of the policy included ensuring an adequate supply within the country of research scientists of the highest quality and the initiation of programmes for the training of scientific and technical personnel on a scale adequate to fulfil the country's need in science and education, agriculture and industry and defence. The progress made by the country since then in the attainment of these goals has been substantial. In the last thirty years or so, 119 universities, affiliating about 1650 colleges, 5 institutes of technology, 150 engineering colleges and about 100 medical colleges and 350 polytechnics have been established; about 150,000 qualified scientific and technical personnel are produced every year. The total stock of scientific and technically qualified

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[8] A. Rahman and Nirmal Haritash: *The Role of Parliament in the Formulation of National Science and Technology Policy*, pp. 1–2.

* For the text of the Resolution, see Appendix 12.2.

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manpower is estimated at 3 million, ranking India as the third largest complement of such manpower in the world, occupying a unique position among developing countries. Simultaneously, about 216 specialised research laboratories and institutes have been established under the aegis of Indian Council of Agricultural Research (ICAR), Council of Scientific and Industrial Research (CSIR), the Indian Council of Medical Research (ICMR), the Departments of Atomic Energy, Science and Technology, Space and the Defence Research and Development Organisation, etc. In recent years, public and private sector organisations and undertakings, assisted by fiscal incentives, have established over 900 in-house research and development laboratories largely to meet their internal technological requirements. A relatively new but important development in the last fifteen years is the rapid growth of engineering consultancy organisations to provide design and consultancy services and act as the bridge between research institutions and the industry. There are now over 150 such firms of varying size and capability employing over 20,000 technologists. The total expenditure on science and technology is now close to 1.1 per cent of the GNP.[9]

BASIC RESEARCH

India has had a distinguished tradition in both science and technology over its long history. Indian scientists have made important contributions to our basic understanding in mathematics, astronomy, chemistry, and so on. It was during the few centuries prior to the establishment of colonial rule that there was a decline in this creativity. However, in the half century before Independence, there was a renaissance in Indian science, associated with the names of J. C. Bose, C. V. Raman, S. N. Bose, Meghnad Saha, Birbal Sahni, S. Ramanujan, P. C. Mahalanobis, H. J. Bhabha, S. Chandrasekhar, and so on. It will be noticed that these great contributions were almost entirely in the areas of basic research. This work was essentially carried out in institutions of higher learning in the country.

Since Independence, as has been mentioned earlier, there has been a significant development of the S&T sector as a whole. A large part of this development has resulted in a quantitative expansion of the science and technology base in the country, over a wide spectrum: in terms of the total number of personnel, coverage relating to physical, chemical, biological, agricultural, medical, industrial, earth and engineering sciences, significant thrusts in certain areas of sophisticated technology such as atomic energy and space, and in areas of immediate national relevance, such as agriculture, and so on.

Basic research has been well supported in the country in the period since Independence. Work of a high order has been accomplished in many institutions.

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[9] *Sixth Five-Year Plan*, Chapter 19, p. 318 and information received from the Planning Commission.

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A number of institutions, specially designated for basic research, have been supported and grown since Independence. Amongst these are: the Tata Institute of Fundamental Research at Bombay (which in Homi Bhabha's words was "the cradle of the Indian atomic energy programme"); the Physical Research Laboratory at Ahmedabad (which was used to nurture the Indian space programme in its initial stages); the Saha Institute of Nuclear Physics at Calcutta; the Indian Institute of Astrophysics at Bangalore (which grew out of the Kodaikanal Observatory); the Indian Association for the Advancement of Science and Bose Institute at Calcutta (both of which had been in existence several decades prior to Independence); the Birbal Sahni Institute of Palaeobotany at Lucknow; the Wadia Institute of Himalayan Geology at Dehra Dun; the Raman Research Institute at Bangalore; the Institute of Mathematical Sciences at Madras; the Institute of Physics at Bhubaneshwar; the National Institute of Immunology at Delhi; and so on. These are grant-in-aid institutions supported by the Departments of Atomic Energy/Space, Science and Technology. In addition, under the Council of Scientific and Industrial Research, there are some laboratories wholly or largely devoted to basic research such as the Indian Institute of Chemical Biology and the Centre for Cellular and Molecular Biology; whilst there are others where appreciable basic work is carried out within their overall activities, e.g., National Physical Laboratory, National Chemical Laboratory, Central Drug Research Institute, National Botanical Research Institute, National Institute of Oceanography, etc. Indeed as far as CSIR is concerned, the intention is to devote around 20 per cent of its activities to science, of which a significant part would be in the area of fundamental research. Similarly, in large institutions such as the Bhabha Atomic Research Centre at Bombay there is a very large amount of basic research, in actual magnitude, though it may be a small part of the overall activities of the institution (in terms of percentage of personnel deployed, of funds allocated, etc.); this is true of similar large centres such as the Vikram Sarabhai Space Centre at Trivandrum; or institutions such as the Sree Chitra Tirunal Medical Centre at Trivandrum. Both the ICAR and ICMR have chains of laboratories in which the activities are largely directed towards applied research, development, extension services, etc.; but in these there is, as in the case of the CSIR Laboratories, a strong focus on basic research; indeed some of the major national capabilities in many areas of life sciences are in these laboratories. In addition, a significant amount of basic research is carried out in institutions of higher learning in the country, the Universities, Agricultural Universities, Indian Institutes of Technology, Indian Institute of Science, Bangalore, Medical Institutions such as the All India Institute of Medical Sciences, Delhi, Post-Graduate Institute of Medical Education and Research, Chandigarh, National Institute of Mental Health and Neurological Sciences, Bangalore, etc. In many of these institutions of higher learning, Centres of Advanced Study, special projects/units and the like have been created to grow excellence. This description, which is not meant to be comprehensive but only illustrative, should convey a picture of the broad spectrum of institutions set up, grown and supported in the field of basic research.

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In the Sixth Plan, considerable emphasis was placed on the need to support and to strengthen basic research, and particularly to ensure that the weakening of the university research system, that had taken place for lack of support earlier, is remedied. During the Sixth Plan period, through the work of the Science and Engineering Research Council and the programme of Intensification of Research in High Priority Areas of the Department of Science and Technology, programmes under the National Bio-technology Board, (since upgraded as an independent department of the Government of India), the programme for strengthening the infrastructure on selective basis in the higher education system to enable them to carry out high quality research, and the continuing support given by agencies such as DAE, DOS, CSIR, ICAR, ICMR, etc., basic research has received significant support. These efforts will be further strengthened during the Seventh Plan.

The 69th Session of the Indian Science Congress held at Mysore in 1982 had as its theme, "Basic research as an integral component of a self-reliant base of science and technology". Extensive discussions were held on various facets of basic research in the Science Congress. In his Presidential address Prof. M. G. K. Menon, an eminent scientist of this country had stated:

> Self-reliance demands a national commitment and political will; and involves many facets such as technology policy; management and technical skills, etc. But clearly a crucial element of self-reliance, in a world whose economy and life styles are dominated by scientific and technological advances, has to be a self-reliant base of S&T. And this base cannot be built without at the same time doing significant basic research; for that is the only way to generate basic understanding which is not restricted to specific knowledge in an area, but provides the ability to attack and solve problems over a wide spectrum; and it is this ability that basic research more than anything else develops to the highest degree.

In her message to the International Seminar on the Role of Fundamental Research in developing countries held in New Delhi in February 1982, the late Prime Minister Smt. Indira Gandhi had observed that developing countries should concern themselves with fundamental research along with applied science, and at the same time try to adopt and profit from outside developments. Self-reliance is important for all countries especially for a country of India's size whose problems are too vast to be solved by outside aid, either economic or intellectual. She had also stated "self-reliance must be at the very heart of S&T Planning. Self-reliance does not mean making everything ourselves but acquiring the capacity to do so when things come to a head".[10]

The Prime Minister, Shri Rajiv Gandhi in a speech to the Lok Sabha on April 10 , 1986 also underlined the importance of science and technology for the common man. He said,

> Our scientists have many achievements behind them. They have made us self-reliant in very basic areas. Whether it is in food, whether it is in certain strategic areas of

[10] Information received from the Cabinet Secretariat Technology Policy Implementation Committee.

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defence, in space, in nuclear sciences, they have shown that, where there is a challenge, they are up to that challenge and they have the capacity to lift India up when they are given that chance and when they are given full backing.

We have identified a number of such areas starting with those that affect the life of the average person in the villages, in the more backward or depressed areas. We are identifying these as missions; missions because we thought that the success of some of these programmes, that I mentioned earlier, was because one person was in command, he had full authority to run that exercise, he had full funding, he had the backing of all the institutions that he needed. When we talk of the mission, we intend to draw it up in that same broad concept.

We have decided on a number of missions already. Five have already been established. Drinking water—it might sound simple that we will just be digging holes in the ground and pulling out water, but of all these five missions, the maximum number of scientific development and technological development will go into drinking water, and the highest technology out of any of these missions will be used to give drinking water specially in those areas where there is a tremendous shortage of drinking water.

During the Seventh Plan (1985–90) a re-look was given to the schemes which would have direct impact on the utilisation of science on the society. These include providing opportunities to the scientists for interaction with their counterparts at national and international levels, promotion of scientific interest in youth, councils on S&T to promote S&T development of States and Union territories, application of S&T for the weaker sections, removal of drudgery in women, etc. The first year of the Seventh Five-Year Plan (1985–86) consolidated the initiative taken during the Sixth Five-Year Plan. In addition, two new schemes, namely, Utilisation of Scientific Expertise of Retired Scientists (USERS) and Science and Technology Application on Rural Development (STARD) were also initiated.

The present emphasis and approach towards supporting identified thrust areas for promoting frontline research will continue in addition to supporting time bound, well defined, research programmes of high priority and national relevance. An important element of this approach has been the strengthening of monitoring and evaluation mechanism for the R&D programmes. The Department of Science and Technology carries out R&D programmes mainly under two schemes viz.: (1) Science and Engineering Research Council (SERC) and (2) General Research Scheme (GRS). These schemes have made considerable progress through evolving major programmes in newly emerging and frontline areas of research through the mechanism of Programme Advisory Committee (PAC) in addition to enhancing the general research capabilities in the existing fields. To cite a few examples:

- Coordination Chemistry; Polymer Chemistry.
- Archaean Lithosphere; Deccan Volcanism; Precambrian Palaeo Environment.
- Chemical Evolution and Origin of Life; Membrane and Model System; Molecular/Cell Biology (Biocides); Neurobiology.

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- High Pressure Techniques; Laser Spectroscopy; Holography Non-Linear Phenomenon; Plasma Satellite Programme; Superconductivity.
- In addition, new institutional structures have been created through the establishment of new institutes to deal with specific areas, e.g. Institutes of Plasma Research, and S. N. Bose Centre for Theoretical Sciences.[11]

It is expected that, by the end of the Seventh Plan the new approach would bring a definite impact in initiating new research areas in the country.

TECHNOLOGY POLICY STATEMENT OF THE GOVERNMENT

The late Prime Minister, Smt. Indira Gandhi, announced on January 3, 1983 at the Indian Science Congress Session held at Tirupati the Technology Policy of the Government of India, the aims of which are to:

(i) attain technological competence and self-reliance, to reduce vulnerability, particularly in strategic and critical areas, making the maximum use of indigenous resources;
(ii) provide the maximum gainful and satisfying employment to all strata of society, with emphasis on the employment of women and weaker sections of society;
(iii) use traditional skills and capabilities, making them commercially competitive;
(iv) ensure the correct mix between mass production technologies and production by the masses;
(v) ensure maximum development with minimum capital outlay;
(vi) identify obsolescence of technology in use and arrange for modernisation of both equipment and technology;
(vii) develop technologies which are internationally competitive, particularly those with export potential;
(viii) improve production speedily through greater efficiency and fuller utilisation of existing capabilities and enhance the quality and reliability of performance and output;
(ix) reduce demands on energy, particularly energy from non-renewable sources;
(x) ensure harmony with the environment, preserve the ecological balance and improve the quality of the habitat; and
(xi) recycle waste material and make full utilisation of by-products.

The statement (TPS) also defines the basic objectives of the technology policy as the development of indigenous technology and efficient absorption and adaptation of imported technology appropriate to national priorities and resources.*

[11] Information received from the Department of Science and Technology.
* For the text of the Technology Policy Statement see Appendix 12.3.

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The TPS stipulates that the Government will evolve instruments for the implementation of this policy and spell out in detail guidelines for Ministries and agencies of government as well as for industries and entrepreneurs. With a view to fulfilling this mandate, a high level 12-member committee known as the Technology Policy Implementation Committee (TPIC) headed by the Chairman, SACC and Member (science), Planning Commission was set up with the approval of the Prime Minister in June 1983. The Committee has been provided with a small secretariat to facilitate working out of modalities and mechanisms for implementation of the Technology Policy and to monitor the progress in such implementation. The term of the TPIC has come to an end and the remaining work of the TPIC has been transferred to the Department of Science and Technology.

The methodology adopted by the TPIC in the discharge of its functions was based on: (i) studies and reports by Inter-departmental Working Groups set up by the Committee; (ii) consideration of papers prepared by the concerned Ministries/Departments/agencies of Government at the instance of the Committee; and (iii) papers prepared by the TPIC Secretariat for the consideration of the Committee. The decisions taken by the Committee, which are usually based on a consensus, are normally taken to the Committee of Secretaries and thereafter by the concerned administrative/nodal Ministry to the cabinet Committee concerned or the Cabinet, as might be required.

Since the time the TPIC was set up, the chairman (TPIC) has set up 7 Inter-departmental Working Groups to examine matters relating to (i) Establishment of a national industrial research, Design and Development Funding Facility; (ii) Guidelines for promoting International R&D Collaborations at the enterprise/ institutional level; (iii) Guidelines for Technology Assessment and mechanisms to facilitate quicker absorption, adaptation and unpackaging of imported technologies; (iv) Setting up of a Technology Data Bank; (v) Identification of priority areas for import of technology in terms of the TPS; (vi) Identification of gaps in design engineering and engineering consultancy capabilities in the country and suggesting measures to bridge these gaps; and (vii) Guidelines and mechanisms to promote development contracts.

The Reports of the Working Groups referred to at (i), (ii), (iii), (iv) and (vii) above have also been received and have been considered by the TPIC. Implementation of the recommendations made by the Committee at these meetings is in various stages of progress. Reports of the other Working Groups are also expected to be received before the end of February 1987.

Among the important subjects considered and recommendations made by the TPIC during the past 3 years or so of its existence, special mention may be made of the following:

Technology Development Fund

Paras 4.8, 4.11 and 5.2 of the TPS clearly suggest the need for having a viable system for financing industrial RD&D activity in the country, on terms and

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conditions that would be attractive enough for our entrepreneurs and other institutions (both in the Public and Private Sectors) to invest their money and efforts in this risky business of innovative development. Realising that individual industrial units in India, with their present (or even projected) levels of turnovers and profitability, are—with few notable exceptions—not in a position to invest adequate sums in RD&D activity of a growth-oriented, risk-bearing nature to match similar investments being made in the industrially advanced countries, the TPIC has prepared a comprehensive proposal for the establishment of an autonomous *Technology Development Fund* (with a size of Rs. 500 crore over the Seventh Plan period) at the national level. The 'Fund' is proposed to be *financed through the levy of a general R&D Cess at a rate not exceeding 1 per cent of the production turnovers of industries*, by suitably amending the provisions of Section 9 and other Sections of the IDR Act. As the traditional debt: equity mode of financing, which is appropriate for supporting industrial projects based on *proven* technologies, has been found to be not quite appropriate for supporting innovative, risk-bearing R&D activities, the TPIC has emphasised the need for adopting a "flexible" approach in funding industrial RD&D activities through the proposed mechanism. It has accordingly been suggested *that depending upon the nature of the R&D activity to be financed and a careful, expert assessment of the degree of risks involved, disbursement from the 'Fund' could take any form such as "grants," "loans" at varying rates of interest, 'equity' participation, "subsidy" or "guarantee" payments, etc.* The selection of R&D projects for purposes of financing through the 'Fund' is to be *based on a process of competitive selection* among industries and other institutions possessing competence in the relevant area in the country. The 'Fund' would be *supported by an appropriate number of Expert Sectoral Groups (to be known as Research Direction Committee)*, with adequate delegated powers to manage the on-going, day-to-day activities in the major sectors of industry. The work of the Research Direction Committees *would be coordinated and projects of inter-sectoral importance would be financed directly by the Central authority of the 'Fund'*, which would have representatives from Industry, Scientific Research (including Academic) institutions, and the concerned Ministries of the Government. As the 'Fund' in question, while being commercially-oriented to an extent, would basically have *to be a promotional, technically-oriented structure, it is proposed to keep it separate from the existing Industrial Financing Institutions in the country, whose culture, ways of working and profit objectives would come in the way of effective functioning of the proposed 'Fund'.*

Guidelines for promoting R&D Collaborations among Enterprises/Institutions of Different Countries

Paras 5.1 and 6.3 of the TPS, *inter alia*, highlight the importance and need of encouraging well-defined international collaborations in research and development, particularly among developing countries.

With a view to accelerating the development of new technologies of common

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relevance to two or more countries of the world through a pooling of their manpower, material and financial resources; to minimise the costs of such development to individual enterprises/institutions; and to develop technologies, with an eye on the export market, the TPIC has finalised Draft Guidelines for promoting international R&D collaborations among enterprises and institutions located in India with those in other countries. Final approval of Government to these guidelines is expected to be obtained shortly.

Technology Forecasting and Assessment

Paras 3.1, 3.3, 4.5 and 5.2 of the TPS point out the need for evolving a proper system of Technology Forecasting and Assessment (TF&A) in the country.

One of the objectives of Technology Forecasting (TF) in Government is to ensure that the technologies we import and the technologies we develop are not *ab initio* obsolescent nor do they become so within a short span of their import or development. Another objective is to become aware of technological developments that are taking place in the world so that we can plan and gear our strategies to derive the greatest benefit from these. With a view to overcoming the problem of continuing technological obsolescence and supporting a meaningful futuristic project/product-oriented R&D structure of relevance to us, the TPIC has finalised a blueprint for the establishment of a 'Technology Forecasting' mechanism in the country. Based on these recommendations, the Government has decided to set up a "Technology Information, Forecasting and Assessment Council" (TIFAC) as an autonomous body under the Department of Science and Technology. The Council has since been established.

Technology Assessment (TA), as distinguished from Technology Forecasting (TF), deals with the assessment of the impacts (both favourable and unfavourable) of new technologies on man, society and the environment. TA differs conceptually from the normal cost-benefit analyses undertaken by financial institutions and entrepreneurs in that, in the TA process, not only the intended first order effects of the introduction of new technologies in a given situation are taken into account but, more importantly, the focus is on assessing and projecting the unintended, second and higher order effects thereof on man, nature and society. The TPS itself (para 5.2) mandates a review of all Technology Assessment systems (such as they exist) in the country and requires that a Technology Assessment mechanism consisting of competent groups will render advice in all cases of technology import relating to highly sophisticated technology, large investments and national security. It also requires that in assessing technology, aspects of employment, energy, efficiency and environment shall be kept in view. As Forecasting and Assessment activities are intimately interlinked, it has been decided that the activities relating to Technology Forecasting and Assessment should be looked after by a single institution (viz. the proposed TIFAC) in the country. The institution in question would, however, have a net-working arrangement with all concerned economic/technical Ministries and Scientific Agencies, etc. in the country.

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Measures to Accelerate Technology Absorption/Adaptation/Improvement (TAAI) of Imported Technologies

Paras 5.2 and 5.4 of the TPS mandate that there shall be a commitment to ensure an adequate scale of investment in R&D for the absorption, adaptation and improvement of imported technologies and generation of new technology, making fullest use of overall national capabilities.

Against the back-drop of the fact that industrial technologies once imported into the country have generally remained stagnant, leading to their eventual obsolescence and ultimately the need for repetitive import of improved versions thereof from outside, the TPIC has considered detailed proposals prepared by its Secretariat, Department of Industrial Development and the DSIR for measures to accelerate TAAI activity in the country, covering its technological, financial, training and management aspects. Measures to provide additional incentives for the use of indigenously developed technologies were also considered as a part of this exercise. As a result of TPIC's recommendations, the Union Finance Minister in his Budget Speech for 1986–87 announced several decisions (e.g. *equalisation of tax rates for lumpsum and royalty; increased depreciation for installation of plants and equipments based on indigenous technology* etc.) which would all go to fulfil the TPS objectives in this area. Several other recommendations made by the TPIC for the aforesaid purpose, including one of requiring industrial units importing technologies against large foreign exchange payments to submit *time-bound 'Technology Absorption Plans'* to Government and monitoring of their implementation, have also been accepted and announced by the Government. The TPIC has also proposed, and it has been agreed, *to make it obligatory to involve competent R&D personnel (from within the industrial units or from any other competent R&D organisations in the country) in the process of technology acquisition from outside right from the negotiating stage, particularly in cases where the anticipated technology payments over the duration of the FC agreements would be Rs. 2 crore or more.*

The existing Guidelines for Foreign Collaboration are to be appropriately modified in order to give effect to some of the aforesaid decisions.

Technology Data Bank

Para 5.5 of the TPS emphasises the importance of an efficient system of collection an analysis of relevant technological information, including cost and other economic aspects, since it is a prerequisite for the appropriate choice of technologies and would considerably enhance the possibility of obtaining favourable terms and conditions in the import of technology from outside.

With a view to fulfilling the information needs of our entrepreneurs and scientific research institutions in the field of technology (including its technical, economic/commercial and other aspects), the TPIC has finalised a proposal for the establishment of a computerised *Technology Data Bank* in the country and

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forwarded it to the Ministry of Industry for implementation. The project proposal prepared by the Inter-departmental Working Group chaired by Secretary (TD) and DGTD also suggests the possibility of promoting the establishment of decentralised, Sectoral Technology Data Banks in Public, Private and Cooperative Sectors.

Monitoring and Enhancing Quality and Efficiency of Technology Generation and Delivery Systems in India

Para 2.3 of the TPS, *inter alia*, requires devising of suitable steps to ensure that the quality and efficiency of the technology generation and delivery systems in the country is continuously monitored and upgraded. The TPIC had, therefore, commissioned a Consultant sometime ago to go into this matter in detail in consultation with major Scientific Agencies and Industrial and Professional Organisations, etc. in the country and to submit a Report to the Committee. This Report has since been received and considered by the TPIC. Further follow-up action is in progress.

Measures for Promoting Utilisation and Recycling of Wastes

One of the important aims of the TPS is to ensure recycling of waste materials and make fuller utilisation of by-products from industry and other sectors of the economy. (Paras 2.1, 3.4 and 3.5.)

Wastes can basically be looked upon as resources not utilised.

Based on detailed inhouse studies and the reports of Expert Committees set up in the past, the TPIC Secretariat has prepared comprehensive proposals aimed at giving a fillip to activities for the utilisation and recycling of wastes in the country. These proposals have also been examined by the TPIC in consultation with the concerned Ministries/Departments of Government and it has been suggested that the Ministry of Environment, Forests and Wildlife should undertake the preparation of a White Paper incorporating, *inter alia*, the essential constituents of a national policy on wastes recycling and utilisation. TPIC has also recommended a number of specific aspects that could be considered for inclusion in the suggested national policy.

Fiscal Incentives for Development and Utilisation of Indigenous Technology

In view of the cost of technology development and the time necessary for successful marketing of a new or improved products, indigenously developed items are invariably at a disadvantage compared with the imported products or those based on imported technologies and brand names. The TPS has, therefore, mandated that incentives will be provided to users of indigenously developed technology and for products and processes resulting from such use. It has, in particular, mandated that ". . . Support must therefore be provided through fiscal and other measures, for a limited period, in favour of products made through indigenously developed technologies, care being taken to ensure

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quality." In order to fulfil the above objectives, the TPIC has made a number of suggestions relating to the grant of direct and indirect tax concessions to promote the growth and development of indigenous technology and to increase the demand for indigenous technology-based products. Decisions of the Union Finance Ministry with regard to the TPIC's recommendations in this matter have been announced by the Union Finance Minister in his Budget Speeches for 1985–86 and 1986–87.

Formulation of Guidelines and Mechanisms to Promote Development Contracts

Taking into account the long time cycle from scientific research to utilisation, para 4.4 of the TPS envisages the need to initiate action well in advance to identify and ensure timely availability and delivery of new technologies. For this purpose, encouragement and support, (fiscal, commercial and administrative) will be given to the production and user organisations to be associated with and participate in technology development efforts at appropriate stages. The grant of development contracts by Government departments/agencies, public sector undertakings etc. can be used to promote industrial innovation and influence the direction of technological change in favour of indigenous technology development. Formulation and adaptation of a well-considered policy to encourage development contracting could help in building effective linkages between the users of various products and services and those who have capability to develop and supply them. The Working Group set up by the TPIC to formulate guidelines and mechanisms to promote development contracts has submitted its report and the same has also been considered by the TPIC. Based on the decisions taken by the TPIC in this matter, detailed guidelines are expected to be issued by the Government in due course.[12]

NUCLEAR POLICY

Work on peaceful uses of atomic energy started in India four decades ago when it was a frontier science and only a few developed countries were engaged in such work. Today, India has developed expertise in all stages of the nuclear fuel cycle, and created indigenous capabilities in designing, construction and operation of nuclear power plants, reprocessing of spent fuel, and manufacture of the necessary sophisticated equipment. The benefits of nuclear science are being disseminated to medicine, agriculture and industry.

To use the country's uranium and vast thorium resources, a three phase atomic power programme has been envisaged. The first phase started with natural uranium fuelled pressurised heavy water reactors (PHWRs) producing power and plutonium as a by-product. The second phase envisaged plutonium

[12] Information obtained from the Cabinet Secretariat (Technology Policy Implementation Committee).

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and uranium-233 from thorium. The third phase reactors will be based on the thorium cycle producing more uranium than they burn.

Nuclear power generation commenced in 1969 with the commissioning of the Tarapur Atomic Power Station consisting of two enriched uranium fuelled boiling water reactor units each of 210 MWe capacity. (Now it is 160 MWe.) At Rawatbhatta, Rajasthan, two prototype PHWR units, each of 220 MWe capacity, attained criticality in December 1972 and April 1981. In July 1983 the first entirely indigenously designed, constructed and manufactured power reactor at Kalpakkam, near Madras, was synchronised to the grid. The second reactor of the same station achieved criticality on August 12, 1985 and synchronised to the grid on September 20, 1985. The total nuclear power generation capacity of the country is now 1230 MWe. Another 2 × 235 MW nuclear power station is at an advanced stage of construction at Narora in Uttar Pradesh. Construction work on the fifth 2 × 235 MW nuclear power station at Kakrapar in Gujarat is also in progress. Work has also commenced on two more 2 × 235 MW stations at Kaiga in Karnataka and Rawatbhatta in Rajasthan.

The nuclear power programme aims at achieving an installed capacity of 10,000 MW by AD 2000 which would represent about 10 per cent of the country's power generation capacity at that time.

Heavy water is the moderator and the coolant of India's PHWRs. The country's first heavy water plant based on electrolysis and hydrogen distillation process has been working at Nangal since 1962. Heavy water plants using ammonia-hydrogen exchange process, were subsequently set up at Baroda, Talcher and Tuticorin. A heavy water plant fully designed and fabricated by Indian experts and based on the indigenously developed hydrogen-sulphide-water exchange process, has been set up at Rawatbhatta. The total rated heavy water production capacity is 314 tonnes per year. Another heavy water plant of 110 tonnes capacity was commissioned at Thal-Vaishet recently (October 1986). Two more plants at Manuguru and Hazira with capacity of 185 tonnes and 110 tonnes respectively are being set up. Indian scientists and technicians have also developed successfully heavy water upgrading technology and set up upgrading plants at Kota, Kalpakkam and Tuticorin which have been operating very efficiently.

Since the sixties India has also been reprocessing the spent fuel from her reactors in separate plants set up indigenously for this purpose.

The significance of radioactive waste management was recognised very early in India and R&D work at Trombay was initiated even before the power programme. This resulted in efficient management schemes for wastes from the reactors and fuel reprocessing plants that came up subsequently. Recently, a Waste Immobilisation Plant using purely indigenously developed vitrification technology for the immobilisation of radioactive waste, has been commissioned at Tarapur by BARC scientists. The waste management programme in India is well established and complies with the most stringent standards.

The nuclear power programme is based on extensive R&D effort which had its beginning in India in 1944. From pioneering and small beginnings, the

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Bhabha Atomic Research Centre at Trombay, Bombay, has been providing R&D back up for the nuclear power programme and develops technologies in the peaceful uses of atomic energy for transfer to industry, medicine and agriculture. The activities of the Centre pertain to diverse fields such as chemical engineering, metallurgy, reprocessing, fuel fabrication, waste management, radioisotopes, lasers, electronics, radiation, medicine, biology, food technology, etc. In the field of research reactors, Indian expertise from design to operation stages is fully developed. The country's first 1 MWt swimming pool reactor APSARA was built indigenously in 1956. The 40 MWt CIRUS reactor, operating since 1960, has provided valuable production of isotopes, experimentation and training facilities. A homogenous reactor PURNIMA II using uranium-233 fuel, became critical in 1984. Experience gathered from this reactor will be valuable in optimising the design of uranium-233 fuelled neutron source reactor KAMINI being set up at the Indira Gandhi Centre for Atomic Research, Kalpakkam, Tamilnadu.

For the production of isotopes and also for the development of power reactor technology, a new high flux indigenous 100 MW reactor DHRUVA achieved critically on August 8, 1985.

BARC has been producing on a large scale and supplying a variety of radioisotopes for use in medicine, industry, agriculture and research.

The country's presently identified uranium reserves can support a nuclear power programme with PHWRs of 10,000 MWe for 30 years. To maximise utilisation of the available uranium resources and to use the abundant thorium, India established a Reactor Research Centre (RRC)—renamed as the Indira Gandhi Centre for Atomic Research—at Kalpakkam, Tamilnadu in 1971. The Centre has set up a strong base in sodium technology. The successful commissioning of a fast breeder test reactor (FBTR) in December 1985 marked the beginning of the second phase of India's nuclear power programme. This is a liquid metal cooled fast reactor which is essentially an indigenous effort. The reactor is using mixed uranium-plutonium carbide fuel developed at BARC. A beginning has also been made on the design of a 500 MWe pool type prototype fast breeder reactor (PFBR).[13]

SPACE PROGRAMMES

Starting with the launching of small sounding rockets from the Thumba Equatorial Rocket Launching Station (TERLS) in 1963, the Indian Space Research Organisation (ISRO) has travelled a great distance. It has grown in an integrated way in Space Science, Technology and Application. Self-reliance and national applications are the main cornerstones of the Indian Space Programme. International cooperation has also played a significant role in these efforts. The Space Programme of the country is totally oriented to peaceful purposes. The

[13] Information obtained from the Department of Atomic Energy.

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contribution of Space Technology and achievements in the fields of communication, and weather forecasting are substantial. In a country of vast distances and with a high percentage of illiteracy there is an increasing scope for satellite communications which play an important role in reaching the benefits of modern technology rapidly to people. Another area of applications is for natural resources management through remote sensing. India has made rapid strides in this field, especially in energising various users in different parts of the country. A National Natural Resources Management System (NNRMS) has been established with a number of image processing and user oriented systems at regional and national levels. NNRMS has three major components: application projects, infrastructure development including training and a Natural Resources Information System (NRIS). Successful operationalisation of the first of the series of indigenously built operational remote sensing satellites viz., IRS-1A launched on March 17, 1988 is expected to further hasten the progress.

The first generation Indian National Satellite System (INSAT-I) represents India's first step towards implementing operational space systems for identified national requirements. The INSAT-I is a multipurpose operational satellite system for domestic long-distance telecommunications meteorological earth observation and data relay, nationwise direct satellite TV broadcasting to augmented community TV receivers in rural areas, and nationwide radio and TV programme distribution for re-broadcasting through terrestrial transmitters. INSAT-1B was successfully launched in August 1983. INSAT-1C was launched by an Ariane launcher in July 1988 to add additionally to the INSAT-I twin-satellite space segment. The launch of INSAT-1D is expected in 1989.

In the field of satellite technology, India made a spectacular beginning with Aryabhatta which was launched in 1975, and has a number of satellites including a geosynchronous satellite, APPLE, to its credit. The launching of IRS-1A, the state of the art operational remote sensing satellite in March 1988 and its subsequent operationalisation is a major landmark in the ISRO's programme of utilising space for the benefit of the common man in the country. A large number of applications such as forest monitoring, wasteland identification, groundwater targetting, agricultural monitoring, mineral resource exploration, drought management, flood monitoring have already been operationalised on a nationwise scale using space remote sensing. Work on the first two of the second generation INSAT (INSTAT-II) has formally commenced since April 1985. These indigenously built satellites will provide significant additional improved capabilities. The launch of the first INSAT-II (Test) satellite is expected in 1990–1991. India is now building its own operational Indian Remote Sensing (IRS) series to provide the continuity of services to the various users. India is also building a 150 kg class Stretched Rohini Satellite (SROSS) series for conduct of various scientific experiments.

In the area of launch vehicles, the efforts culminated in the modest but significant launch, of SLV-3 in 1979–80. India has now embarked upon projects to develop more powerful launch vehicles like the Augmented Satellite Launch Vehicle (ASLV) and the Polar Satellite Launch Vehicle (PSLV). It is

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expected that our own launch services would be operationalised during the next decade and the country will be in a position to place geo-synchronous satellites in space.

India made a beginning in manned space flight with the Indo-Soviet joint mission in April 1984 and a number of earth observation, material sciences and life experiments were conducted.[14]

OCEAN POLICY

In recent years, the accelerating pace of technological, economic, social and political changes have rapidly altered man's relation to the oceans which cover nearly 71 per cent of the earth. New Ocean resources are being developed and their application is being accelerated. Some of the world's most abundant fishing grounds located within 200 miles of the shore are being explored and fisheries resources exploited. In a world that faces widespread malnutrition and sufficient food supplies, nearly 80 million tonnes of annual catch of fish represents a vital source of protein for millions of people as well as an important economic resource for many littoral States. Other major offshore resources include the oil and natural gas buried in the continental shelf which extends from the shore to the ocean floor. As the world grows short of fossil fuels, more and more attention has been focussed on the hydrocarbon potential. The ocean floor lying beyond the submerged margins of the continents is one of the more inhospitable environments on the planet. It is a region of continued darkness, crushing pressure and sparse, but marvellously adapted life. The deep sea-bed also contains deposits of important minerals. Large areas of ocean floor in the Pacific, Atlantic and Indian Oceans are carpeted with manganese nodules—the size of a potato on an average—which contain over 20 different metals.

For several centuries, the people of India have been using the seas surrounding the Indian sub-continent for transport, communication and for food. During the last few years, the exploration and exploitation of living and non-living resources of the seas have acquired a new thrust. With an extensive coastline of nearly 6000 km and a vast exclusive economic zone of about 2 million sq km, India now exploits nearly 46 per cent of the total catch of the living resources of the Indian ocean. The new ocean regime established by the United Nations Convention on the Law of the Sea, 192, which has been signed by 159 States, including India provides new rights and opportunity for developing ocean resources.

Recognising the importance of the oceans in the economic development and progress of the nation, the Government of India created a new Department of Ocean Development in July 1981 for coordinating and promoting the activities related to ocean development through (a) systematic surveys for assessing the

[14] Information received from the Department of Space.

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availability of living and non-living marine resources, (b) preservation, protection and conservation of marine environment, and (c) development of appropriate manpower and technology required for harnessing the sea resources. The policy objectives were defined in a statement presented to the Parliament by the Prime Minister in July 1982.*

The main thrust areas in the ocean sector have been Antarctic Research, promotion of surveys and optimum utilisation of living and non-living resources, harnessing of renewable resources of energy, exploration of polymetallic nodules from the deep sea-bed and development of manpower and marine technology.

Antarctic Research

Within a short span of five years, the Department of Ocean Development has made considerable progress in the matter of ocean development. The activities of the Department have encompassed various efforts ranging from fundamental and resource oriented research and surveys to despatch of six expeditions to Antarctica and the establishment of a permanent manned station there. The first Indian expedition to Antarctica consisting of 21 members was organised in the year 1981, within the shortest possible time. It was considered an important landmark in the Indian science. The second expedition was launched in December 1982 and it spent 57 days on the icy continent. This expedition with 28 members, selected a site for a permanently manned station in Antarctica and also erected two prefabricated barracks. The third expedition with 81 members, which included two ladies, drawn from 16 different organisations landed in Antarctica in December 1983. It established a permanent station named "Dakshin Gangotri." Twelve members of this team stayed in Antarctica throughout the winter. Several scientific studies of importance were undertaken during this expedition. Direct communication links between India and Antarctica were also established. The fourth expedition comprising of 83 members, including one Mauritian scientist, landed in Antarctica in December 1984. Thirteen members of this expedition team were left behind to stay in the permanent station and to continue scientific work during the winter. The fifth expedition comprising of 88 members including two women scientists was launched on November 30, 1985. It returned to India on March 24, 1986 after accomplishing its tasks fully. They brought back the 13 member wintering team of the fourth expedition. Another 14 member team (third party) was left behind to undergo wintering in Antarctica and this team was to return to India in March 1987.

The Sixth Indian Antarctic Expedition team consisting of 89 members sailed from Goa on November 26, 1986 and landed in Antarctica on December 21, 1986. The scientific component of the team consisted of 18 personnel for the summer work and six for the winter work. During this expedition, apart from

* For the text of the Ocean Policy Statement please see Appendix 12.6.

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the maintenance work of the permanent station the scientific work was to cover studies in geological, geophysical, meteorological and geomagnetic aspects.

So far, 141 scientists and 342 logistic personnel have participated in these expeditions. Five winter teams each consisting of 12 to 17 persons have stayed throughout the year in the icy continent. The seventh expedition which returned to Goa on March 26, 1988 stayed for 70 days in Antarctica. The eighth expedition has reached Antarctica on December 24, 1988. Since the period of guarantee of the research base at Dakshin Gangotri is almost over, a second permanent station is being set up in the ice-free areas of Schirmacher region entirely through indigenous efforts.

The short-term and long-term objectives of the Antarctic research programme have been defined and a Five-Year Plan has been drawn up. As a part of this endeavour, it is proposed to establish an Antarctic Study Centre with logistic base facilities at Goa and also to procure an Ice Breaker (Supply-cum-Research vessel).

During these expeditions, scientific studies have been carried out in the fields of communications, meteorology, geology, geophysics, biology, and oceanography. Data collected during the expeditions are being analysed in various national laboratories and institutes.

In organising the Antarctic research programme, the Department of Ocean Development has been utilising the resources and manpower from various agencies in the country. Logistic support for the expedition is provided by the three different services. The scientific component is drawn from different research institutions spread all over the country and from government departments.

By virtue of its scientific research activities in Antarctica, India became a Consultative Party to the Antarctic Treaty of 1959 and also a member of the Scientific Committee on Antarctic Research. The Department participated in the negotiations for the establishment of a mineral regime for the Antarctic continent. India has acceded to the Antarctic Marine Living Resources Convention, 1980 and has become a full member of the Commission on the Convention of Antarctic Marine Living Resources (CCAMLR).

Pioneer Status and Polymetallic Nodules Programme

During a short span of seven years, pioneering work has been done in the area of Antarctic and oceanographic research, with special emphasis on the location and processing polymetallic nodules. By virtue of its activities in deep sea-bed exploration, India was accorded in April 1982 "pioneer status" along with three other countries, viz. France, Japan and the USSR and four other multi-national consortia. In August 1987, India came to be registered as the first pioneer investor. A mine site of 150,000 square kilometres in the Central Indian Ocean has been allotted to India by the Preparatory Commission, a United Nations body, for further exploration and development.

The survey and exploration efforts have been directed mainly to assess the

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relative concentration and quality characteristics of nodules and broad sea-bed topography. The work is being executed through the National Institute of Oceanography with the necessary assistance from the Engineers India Limited as a consultant for exploration, planning and geostatistical processing of resource data and from the Metallurgical and Engineering Consultants (India) Limited for bathymetric data processing. More than four million square kilometre area of the Central Indian Ocean basin was subjected to exploration employing rapid survey techniques. The sampling grid was progressively reduced from 100 km to 25 km and partly to 10 km. The work has been carried out mainly by employing chartered vessels with the support from the Indian vessel *Sagar Kanya*.

Oceanographic Research

The two research vessels, ORV *Sagar Kanya* and FORV *Sagar Sampada*, which were acquired during the Sixth Plan period, have been operating under the control of the Department. These vessels are primarily used for carrying out a series of research cruises for oceanographic studies as well as for assessing and evaluating the resource potential of various maritime zones. The target area to be covered within a span of ten years includes approximately two million square kilometres of the economic zone area.

Sagar Kanya has been carrying out multidisciplinary studies in the exclusive economic zone. It has so far completed 43 cruises and has covered 141,665 line kilometres of exploration. During the cruises, extensive studies have been conducted on primary productivity, quantification of zooplankton and phytoplankton, meteorology, air-sea interaction, marine fertility and pollution of sea water, mineral exploration and oceanic circulation. In connection with the International Ocean Festival in Mauritius, in which India has participated, *Sagar Kanya* had been especially deputed at the request of the Mauritius Government for hydrographic survey in the EEZ of Mauritius.

Sagar Sampada, which is deployed for the survey of living resources in the EEZ, has so far completed 49 cruises with a total track distance of 197,900 km. As a result of the survey work, potential deep sea prawn and lobster grounds have been located in several regions.

Pollution Monitoring Stations

The Department is seized of the various aspects of marine pollution. An apex committee has been set up to look into various aspects of control; combating, monitoring and prevention of marine pollution.

Besides, the Department is developing marine technologies. These include telemetry, data buoy systems, oceanographic towers, underwater navigation system and remote sensing for oceanographic data. A centre for remote sensing at the National Institute of Oceanography, Goa, has been set up. A National Oceanographic Information System is also being evolved to develop central facility for storing data and information relating to marine sciences and technology.

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Desalination

The water available for human consumption in many parts of several coastal States in India is largely brackish. The Department has sponsored research on the use of reverse osmosis to desalinate brackish water. Two pilot plants are now in operation. They produce a total of 100,000 litres of potable water per day. One plant has been established near Madras in Tamil Nadu and the other in Andhra Pradesh.

Manpower Development

An important factor in the entire development work of the marine sector is the availability of trained manpower. With a view to creating adequate trained manpower, the Department has formulated, encouraged and funded various programmes and research projects undertaken by the Universities and IITs and other research organisations. The cooperation and assistance of the various national research laboratories and defence organisations have also been made available to the Department of Ocean Development.

At the present time, there are no national centres for training in marine science or technology in India. However, there are 30 academic and other training institutions in India that offer some courses in marine science. DOD is providing financial assistance to 100 students who are studying in these institutions. The present estimate is that about 3,500 people need to be trained in the various disciplines of marine science during the next 15 years.

A scheme of Fellowship and Research Associateship has been started in order to attract talented young scientists to work in different disciplines of ocean science and technology. So far, 175 fellowships and 40 research associateships in marine science have been allocated in 25 Universities, 5 IITs, 10 National/State laboratories under the various programmes of the Department.

Energy from the Ocean

All aspects of the possibility of converting ocean wave energy into electrical power are under study. A wave rider buoy that has been deployed off the coast near Madras has collected a full year of wave data. A pilot plant on wave energy utilisation is being established at Vizhingam (Kerala). The construction work on civil structure, mechanical and electrical phases required for the proposed plant is in progress.

Since 1979, university and industrial research centres have been studying the potential for Ocean Thermal Energy Conversion (OTEC). Similar studies in the United States, Japan, France, Sweden, and the Netherlands have indicated that OTEC may be the most promising source of large-scale recovery of usable energy from the oceans.

The Department does not directly operate any laboratory or institute. It coordinates and allocates funds for research and development in ocean-related activities such as desalination, harnessing of wave energy, ocean thermal energy,

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manpower development, remote sensing, marine chemicals, marine instrumentation, control of pollution etc. The Ocean Science and Technology Board, constituted by the Government in February 1986, acts as the focal point for Inter-Departmental/Inter-Ministerial coordination in respect of ocean-related activities, with the objective of establishing an integrated approach for coordinated and efficient development and exploitation of ocean resources. The Department utilises the resources and manpower from various agencies in the country for implementing various programmes and planned activities in the ocean sector.

PRESERVATION OF ENVIRONMENT

The last three decades of economic development, population growth, urbanisation, industrial progress and modernisation of agriculture have put a great strain on the natural environment and its resources the symptoms of which are already visible in several parts of the country. Water and air pollution, soil erosion deforestation and desertification, loss of wildlife and genetic resources are some of the major environmental concerns. These are attributed to the conditions of poverty and under-development in the context of burgeoning population growth as also to the negative effects of the process of development without due cognisance of the need for conservation.

Development with conservation implies that the growth priorities do not sacrifice the needs of tomorrow for short term gains. It requires closer association of scientists, technologists, planners, administrators and public at large.

To provide explicit recognition to the pivotal role that environmental conservation must play for sustainable development, the Government of India set up a Department of Environment in November 1980. Since January 1985, it forms a part of a new Ministry of Environment and Forests. An integrated Department called 'Department of Environment, Forests and Wildlife' in the Ministry of Environment and Forests came into being with effect from September 25,1985. The Department plays a watchdog role and serves as a nodal agency in the administrative structure of the Government for integration of environmental concerns in the planning process. Promotion of scientific research, education and training, impact assessment of development projects, pollution monitoring and control, eco-development work involving students, local people voluntary agencies and ex-service personnel. National Forest Policy and Forestry development in the country including social forestry, wildlife preservation and protection of wild birds and animals, and fundamental research including coordination of higher education in forestry are among the major activities of the Department. Besides, the new Department also includes the following items of allocation of work:

- National Landuse and Wasteland Development Council.
- National Wasteland Development Board.

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- Central Ganga Authority (CGA), set up in February 1985 under the chairmanship of the Prime Minister.
- Padmaja Naidu Himalayan Zoological Park.
- Govind Ballabh Pant Institute of Himalayan Environment and Development.

The Botanical Survey of India (BSI) and Zoological Survey of India (ZSI) are the two agencies of the department for survey and investigation on living natural resources and ecosystems. The Botanical Survey of India was established in 1890 to carry out floristic surveys. It has 9 circles located in the country and 4 specialised research units in the headquarters. The Zoological Survey of India, established in 1916, undertakes the survey of all the faunistic resources of the country. It has 15 regional stations and has so far brought out 115 volumes of fauna of India. The National Museum of Natural History (NMNH) is an organisation for non-formal education and awareness. The statutory responsibilities for pollution control are implemented through the Central Board for the Prevention and Control of Water Pollution. The Department also closely interacts with the R&D, educational institutions, voluntary organisations and of course the concerned Government Ministries, Departments, etc. at state levels. Some of the important activities for environmental protection are outlined as follows:

> The Central Board for the Prevention and Control of Water Pollution together with the State Pollution Control Boards look after the implementation of the Government policy in respect of improvement of water and air quality in the country. Minimal National Standards (MINAS) for pollution discharges from specific industries have been formulated and control measures implemented in a phased manner. About 50 per cent of the large and medium industries in the country have so far installed pollution control devices.
>
> A Central Ganga Authority (CGA) headed by the Prime Minister has been set up to oversee the implementation of the Ganga Action Plan. The Central Ganga Authority has approved an investment of Rs. 304.26 crore during the Seventh Five-Year Plan in 27 class I cities of U.P., Bihar and West Bengal. Till the end of March 1988, 194 schemes at a cost of Rs. 200.22 crore in three states are under execution. An elaborate scheme for monitoring the water quality has been prepared.

After a review of the existing legislations on environment, the Environment (Protection) Act, 1986 has been legislated to plug the gaps and to provide a single focus for environmental issues. The Central enactments, namely Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 have been reviewed extensively and suitably amended to make the provisions more effective.

Environmental Impact Assessment is carried out for evaluation of environmental implications and for incorporation of necessary safeguards for development activities having a bearing on environmental quality. The project authorities are required to incorporate a chapter on environmental aspects in their feasibility reports. Thus, incorporation of environmental considerations in

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development process is an important scientific element for protecting the environment, the absence of which in the past caused environmental degradation. For selected polluting industrial projects which come under the purview of licensing system, a formalised procedure has been evolved so as to ensure that environmental considerations are taken into account right at the site selection stage. Environmental guidelines for setting of industry have been recommended outlining the considerations for site selection, environmental impact assessment and requirements for environmental management during implementation of such projects.

A programme has been taken up to bring out maps on environmental themes using latest techniques such as remote sensing. The first project in this series is a National Vegetation Map of the country. Survey of unexplored areas, preparation of comprehensive documents on flora and fauna, study of endemic and threatened plants and animals, etc. are other conservation measures undertaken for protection of animal and plant wealth of the country. A National Conservative Strategy is being prepared to provide a perspective plan for integration of environmental concerns in development projects of various sectors. 13 sites have been identified for recognition as Biosphere Reserves. The Nilgiri Biosphere Reserve, Namadaffha (Arunachal Pradesh) Biosphere Reserve and Nandadevi Biosphere Reserve have been established and State Governments are being provided with necessary grants for implementing action programmes.

An Eco-Regeneration and Development programme has been initiated with the objectives of demonstrating scientific methodologies for the regeneration of environmentally degraded areas, generating public participation in the solution of environmental problems and broadening general environmental awareness. Eco-Development Task Forces are deployed in U.P. (Kairkuli Micro Catchment in Himalayas near Mussorie) and in Rajasthan (Pushkar Eco-Test Force on the left coast of the Indira Gandhi Canal) for activities such as revegetation of degraded areas specially watersheds soil conservation, eradication of weeds, etc. the task force for J&K (to work in Shivalik ranges) has been sanctioned.

Towards promotion of R&D, a number of research projects have been executed by universities, R&D institutions and non-Governmental organisations, covering studies on the impact of human activities on natural ecosystems, development, survey and monitoring of environmental indicators, alternative approaches to environmentally sound development, etc. Apart from these R&D projects relating to Environmental Research Committee (ERC) and Man and the Biosphere Programme (MAB) which have been continuing for quite some time, a distinctive feature of the research programme has been the initiation of coordinated multi-institutional work in priority areas. This includes All-India coordinated projects on heavy metals, microbial degradation of industrial wastes, tissues culture, seed biology and ethnobiology, wetlands and mangroves, air pollution and plants and arid zones. Coordinated action research programmes have also been initiated for the integrated development of the Western Ghats, Eastern Ghats, Himalayan Region and Ganga Basin. Creation of 'centres of excellence' was initiated to strengthen the country's environmental research and training base.

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The Govind Ballabh Pant Himalayan Paryavaran Evam Vikas Sansthan (Govind Ballabh Pant Institute of Himalayan Environment and Development) has been set up in Katarmal, near Almora, U.P. for evolving integrated development strategies for the Himalayan region. Promotion of environmental education, training and awareness at various levels is the essential prerequisite for environmental management. Catalytic support is being provided to non-Governmental organisations for promotion of environmental awareness. Environmental awareness has increased considerably in the country during the last few years as a result of various programmes organised for the purpose from time to time.

An Environmental Information System (ENVIS) has been set up with a network of Distributed Information Centres (now known as ENVIS Centres). So far, 10 such Centres in specific subject areas have been established to meet the environmental management information needs. The Ministry has initiated in 1986 a National Environmental Awareness Campaign involving voluntary organisations. Nearly 200 non-governmental organisations are involved throughout the country to cover various sections of the population like students, youth, villagers, teachers, government officials, army families, workers, journalists, etc. through a variety of media such as public meetings, camps, exhibitions, film shows, etc. The Centre for Environmental Education, Ahmedabad has covered more than 6000 teachers each in 1986 and 1987. In order to encourage public participation in environment, an annual award, namely *Shrimati Indira Gandhi Paryavaran Puraskar* has been instituted to be given to the most outstanding contributor to the cause of environment.

For promotion of environmental programmes, and integration of environmental considerations in development process at the State/Union territory level, guidelines suggesting possible institutional mechanism, and areas of Centre-State/U.T. collaborative programmes have been prepared. A Centrally funded scheme to strengthen State Departments of Environment is in operation. This has been availed of by 18 States and 4 Union territories.

The rapid depletion of the country's forests has brought the nation face to face with a major ecological and socio-economic crisis. To halt this dangerous trend, the Department is giving new orientations to the entire gamut of forest-related activities. In the implementation of the provisions of the Forest (Conservation) Act, 1980 emphasis is being laid on compensatory afforestation while allowing diversions in unavoidable cases of forest lands for non-forestry purposes. The Forest Policy is under review. The Forest Conservation Act is being amended. The Indian Forest College has been upgraded to the status of a National Forest Academy and named after the Late Smt. Indira Gandhi. The Indian Forest College and State Forest Service Colleges at Barnihat, Coimbatore and Dehradun impart forestry management training to forest service officers.

Forestry Research is an important thrust area for the Ministry. The detailed sub-areas have been identified in basic research, technology and application. The Forestry Research Institute at Dehradun will conduct national level research on identified specific areas. In addition, five new research institutions are proposed at Jodhpur, Jabalpur, Jorhat, Bangalore and Coimbatore to carry out

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research on regional forestry problems and national level research in identified areas. The Indian Council of Forestry Research and Education has been set up to carry out and oversee all such activities.

The Forest Survey of India in collaboration with National Remote Sensing Agency (NRSA) has undertaken to compute estimates of forest cover in various states. The Directorate of Silvicultural Research organises/coordinates research projects on the survey and utilisation of diverse forest species for different programmes, while the Forest Development Corporation ensures the scientific management of forest resources on a commercial basis.

The Wildlife (Protection) Act, 1972 has been carried out to make laws more effective. Captive breeding and rehabilitation programmes have been launched for specific endangered species as the rhinoceros and white-winged wood duck. R&D programmes at the Wildlife Institute have been extended to include five new projects covering the status of endangered species, animal behaviour, animal health and ecological parameters.

The National Wastelands Development Board was established in 1985 with the principal objectives of:

(a) achieving a quantum leap in afforestation activities;
(b) taking the programme of afforestation to the people, especially farmers and the landless and also to increase the involvement of women;
(c) securing widespread involvement of other governmental and non-governmental agencies;
(d) placing greater emphasis on the development of fuelwood and fodder; and
(e) evolving ways and means of securing institutional support.

The cumulative achievement in afforestation upto the end of the Sixth Plan was 8.2 million hectares and during the Seventh Plan (upto March 1988) it is reported as 504 million hectares by the states.

The National Wastelands Development Board undertakes schemes such as decentralised nurseries programme, grant-in-aid to voluntary agencies, rural fuelwood plantation, operation Soilwatch, silvi-pasture, etc.

The National Wastelands Development Board has undertaken Monitoring and Evaluation Programmes to strengthen the data base in the field at State level and to ensure systematic and reliable reporting of the afforestation work and social forestry. Computer-based Monitoring Cells have been set up in 15 States. The National Wastelands Development Board has identified 147 districts having a large area of wasteland in collaboration with the Department of Space, Survey of India and Ministry of Defence.

ACHIEVEMENTS OF INDIAN SCIENCE AND TECHNOLOGY

Since Independence major efforts have been made to create a scientific and technological infrastructure covering a very broad spectrum of disciplines and capabilities. This was largely because of the intuitive appreciation of the role of

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science and technology as an essential, cross-sectoral and under-pinning element for socio-economic development.

Through the adoption of the National Scientific Policy Resolution (SPR) in 1958, the Government, very eloquently enunciated its commitments to science and at the same time expressed its high expectations from it by stating one of the main objectives of SPR as "to secure for the people of the country all the benefits that can accrue from acquisition and application of scientific knowledge." To accrue all benefits from the ever advancing scientific knowledge would need an equally rapid growth in science and technology infrastructure in the country; for a developing country this would mean a fast rate of growth of the economy to enable increasing amount of resources to be channelled for the enhancement of the science and technology infrastructure. Though this has not been possible, India's achievements have been significant.[15]

The chain of national laboratories of Council of Scientific and Industrial Research (CSIR), of the Department of Atomic Energy (DAE), and of the Defence Research and Development Organisation (DRDO) came into existence. The restructuring of agricultural research to constitute the present Indian Council of Agricultural Research (ICAR), with its chain of laboratories, and the large number of agricultural universities, the range of laboratories under the Indian Council of Medical Research (ICMR), which has now gained considerable strength, the capabilities in space science and technology under the Indian Space Research Organisation (ISRO), the growth of electronics, and the focus on environment, ocean development, new and renewable energies with the creation of new departments of Government to deal with these areas are some aspects which relate to growth over the past two decades.

In all, there are 320 S&T institutions of which 240 are major institutions. Of these, 216 are specialised laboratories under the aegis of: Departments of Atomic Energy, Space, Science and Technology, Electronics, Environment and CSIR, ICAR, ICMB and DRDO. There are over 900 inhouse R&D laboratories in public and private sector industry. The stock of S&T personnel is estimated to be close to 3 million and there has been a very significant expansion on the education scene. To ensure that remote sensed data is used most effectively, in conjunction with other available ground truth, in various areas of development, Natural Resources Management system is being set up.

From Rs. 20 crore in the First Plan, the total allocation (Plan-Non Plan) for the S&T sector has risen to Rs. 7567.64 crore in the Seventh Plan. During this period, there has been significant development of the S&T sector.

Policy Matters and Organisation Structures

Special Developments during the Sixth Plan Period

To give the necessary thrust to areas such as Environment, Ocean Development and Non-Conventional sources of Energy, new Departments were set up

[15] V. Rao Aivagari and P. J. Lavakare, *op. cit.*, p. 25.

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during the Sixth Plan; the Department of Environment in November 1980, the Commission for Additional Sources of Energy in March 1981 and subsequently the Department of Non-Conventional Energy Sources in September 1982 and the Department of Ocean Development in July 1981. The National Remote Sensing Agency which was set up in September 1974 under the Department of Science and Technology to collect and analyse remote sensed data obtained through aircraft and from satellite was transferred in 1980 to the Department of Space from DST to enable closer interaction and linkages with various other space activities.

A Cabinet Committee on Science and Technology was set up on March 3, 1981 under the Chairmanship of the Prime Minister to provide policy guidance in all matters relating to science and technology. A Science Advisory Committee to the Cabinet (SACC) was set up in March 1981. Member (Science) in the Planning Commission is Chairman of SACC, to ensure appropriate linkages with the Planning Commission. As recommended by the Science Advisory Committee to the Cabinet, a National Bio-technology Board, as an inter-ministerial coordinating agency, was set up to accelerate the pace of development in the frontier and emerging areas of bio-technology. This area has enormous relevance for agriculture, medicine and industry. In order to deal with the problems of employment and manpower planning among science and technology personnel, a National Science and Technology Entrepreneurship Development Board was set up to prepare a basket of employment opportunities, including self-employment, to arrange for training of S&T personnel on entrepreneurial matters and to channel institutional finances for self-employment. Considering the great importance of popularisation of science and the need to develop a scientific temper in the country, a National Council for Science and Technology Communication was set up in May 1982. These new organisational structures were created to initiate, promote, develop and strengthen S&T activities in these important areas.

There has been a growing awareness of the need to promote a proper environment for scientific work, so that scientists and technologists can make the most efficient use of existing facilities, and perform the tasks assigned to them without any frustration. The government has approved several measures in this connection relating to: enhancement of financial powers; exemption from DGS&D for purchase and disposal of stores; and from the Staff Inspection Unit of the Finance Ministry; introduction of the flexible complementing scheme as recommended by the Third Pay Commission; and other aspects related to amenities and facilities for scientists. Much more, however, needs to be done, in providing better incentives and career prospects, as well as amenities and facilities for scientists and technologists, improving the mobility of scientists through which alone will the knowledge and skills move to where it is most needed, to attract the best of our young talent to science and technology, and so on.

A special scheme to provide funds to some of the higher educational institutions, on a selective basis is now being implemented by the University

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Grants Commission. This is to enable them to strengthen and modernise their infrastructure so that they are capable of working on frontline areas in Science and Technology. Other areas of national importance which SACC has considered and made recommendations relate to: immunological approaches to fertility control; eradication of leprosy; forestry research and education; approach to be adopted for the Seventh Plan for the S&T sector, etc.[16]

Achievements in Various Fields

Indian science and technology has numerous achievements to its credit in a wide spectrum of areas: agriculture, medicine, nuclear energy, electronics, space and ocean development. Current food production is estimated to be over 150 million tonnes, compared to about 51 million tonnes thirty-five years ago. In the medical field the achievements relate to the eradication of small-pox, increase in life expectancy, and reduction in the rate of the population growth. India has proved its capabilities in the design and construction of power reactors production of heavy water and so on. The most recent accomplishment in the field of atomic energy relates to the commissioning of the Madras Atomic Power Project, Kalpakkam, through indigenous efforts. India has also made rapid strides in the field of electronics.

There have been incredible achievements in the country's space programme beginning with the launching of the first satellite Aryabhatta and the successful launching of the multipurpose satellite INSAT-1B, and the spectacular trip of Wing Commander Rakesh Sharma aboard a Soviet spacecraft.

In the field of ocean research, scientists have completed five successful expeditions to the icy continent of Antarctica for studies relating to the exploration of the ocean wealth. Further an independent Antarctic Study Group was constituted under the Chairmanship of Director-General of CSIR in January 1988 to prepare R&D plan for each expedition and to coordinate, evaluate and advise on the content of Antarctic expeditions. It can rightly be said that Indian science is now in the take off stage.[17]

The programme of the DST for supporting research of a multidisciplinary nature in emerging frontline areas of science, made significant progress during the Sixth Plan. The funding provided has made a major impact on university research. A special programme of Intensification of Research in High Priority Areas (IRHPA) has played an important role in initiating and supporting major national activities in the areas of immunology, visceral mechanisms, plasma physics setting up of a major facility for high frequency FT-NMR, Indian Middle Atmosphere Programme (IMAP), etc. A National Institute of Immunology was set up under this scheme and an Institute of Plasma Research resulted through the initiation of Plasma Physics Programme. Three Regional Sophisticated Instrumentation Centres (RSICs) were set up at Nagpur, Chandigarh and Shillong for providing expensive and sophisticated research

[16] Information received from the Planning Commission.
[17] C. V. Subramaniam, *Economic Times*, New Delhi, August 8, 1984.

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equipment/instruments for the use of the scientific community as Centralised facilities.

Three major science and society related schemes, viz. S&T for Women, Science and Technology Development for Scheduled Castes and Scheduled Tribes and Promotion of Scientific Interest in Youth have been vigorously pursued so that the benefit of S&T percolates more effectively to various target sections of the community. At the initiative of the DST, S&T councils have been set up in 18 States and 4 Union territories. In addition, 15 States have set up separate Departments for Science and Technology. A sustained effort has been made to accelerate the pace of a large number of science and technology programmes which are relevant from the viewpoint of basic research, generation of knowledge and expertise, and which have societal application. National Science March popularly known as *Bharat Jan Vigyan Jatha* was organised for the first time to popularise science among the Indian public and to promote scientific temper among the Indian masses. The Department has been providing secretarial support to the Science Advisory Council to the Prime Minister for processing its recommendations.

A good beginning has been made in areas such as earth atmospheric sciences, calibration facilities, instruments development, composites and fibres, and information systems. These efforts, through consolidation and growth in the Seventh Plan, are expected to lead to fruitful results.

Research and development activities in the field of bio-technology are of enormous significance and relevance to the future development of agriculture, medicine and industry. To ensure the growth of this area on a high priority basis in the country under the auspices of NBTB, long-term plan of action in the areas of agriculture, energy, environment and health has been prepared. Mechanisms have been evolved to ensure the supply of radio-labelled chemicals, and for indigenous production (and where needed, bulk import) of restricted enzymes, etc. Publications on the status of bio-technology in India, and recombinant DNA research, safety regulations for India, etc., have been brought out. Work has been initiated on programmes relating to manpower development and creation of infrastructural facilities. With effect from February 1986, a separate Department of Bio-technology has been established to deal with these matters.[18]

PARLIAMENTARY COMMITTEE ON SCIENCE AND TECHNOLOGY

In pursuance of amendments to sub-rule (3) of rule 331 of the Rules of Procedure and Conduct of Business in Lok Sabha effected on May 9, 1989 by the Rules Committee, the Lok Sabha has approved the setting up of a Parliamentary Committee on Science and Technology to examine all matters dealt

[18] Information received from the Department of Science and Technology.

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with by the Ministry of Science and Technology and allied Ministries and to report thereon from time to time. The functions of the Committee are:

(a) to examine such of the activities of the Ministry of Science and Technology and allied Ministries as may seem fit to the Committee;
(b) to report what economies, improvements in organisation, efficiency or administrative reforms consistent with the policy approved by Parliament may be effected;
(c) to examine the Annual Reports of the Ministry of Science and Technology and allied Ministries with a view to finding out whether the expenditure incurred was commensurate with the results achieved;
(d) to examine such of the plan projects/activities of the Ministry of Science and Technology and allied Ministries as may seem fit to the Committee or are especially referred to it by the House or the Speaker;
(e) to study the policies and programmes of Government in the field of science and technological development;
(f) to examine and evaluate Government sponsored or aided activities for the promotion of research and development and their application to industry and agriculture as well as to the security of the nation;
(g) to examine matters affecting scientific and technological institutions, e.g. financial personnel, purchase and import policies and practices;
(h) to examine the plans and programmes in bio-technology;
(i) to examine measures for development and utilisation of scientific manpower; and
(j) to suggest measures for promoting economic development through increased use of scientific and technological innovations.

The Committee is to consist of not more than 22 members—15 of them to be nominated by the Speaker every year from amongst the members of the Lok Sabha and not more than 7 members of the Rajya Sabha to be nominated by the Chairman, Rajya Sabha for being associated with the Committee. The term of the office of the members of the Committee is one year.

ADVISORY COMMITTEES

The Government of India have had, from an early period after independence, set up advisory committees at the apex level on matters of policy, priorities and other important questions relating to science. These bodies have been designated at various times as scientific advisory committees to the Cabinet, Committee on Science and Technology and National Committee on Science and Technology.

On February 4, 1985 a Science Advisory Council to the Prime Minister was appointed with the mandate of advising the Prime Minister on (a) major issues facing science and technology today; (b) the health of science and technology in the country and the direction in which it should move; and (c) a perspective

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plan for AD 2001. The Council will also look at specific problems with different scientific departments, policies, priorities for research and technology missions, etc.

In addition a leading scientist of the country, Prof. M. G. K. Menon was also appointed Scientific Adviser to the Prime Minister.* Besides, Shri Sam Pitroda was appointed adviser to the Prime Minister on Technology Missions, to review the progress and report to the Prime Minister along with corrective measures. A number of new schemes to train Indian scientists in advanced technologies in the developed countries and also to attract the Non-resident Indian Scientific Talent back to the country have been drawn up. The Prime Minister, Shri Rajiv Gandhi observed in his speech in the Lok Sabha on April 10, 1985 as follows:

> . . .if we are to stop this brain-drain of too many scientists and the technologists leaving the country, we have to tailor the subjects that we are teaching to the needs for our development. If we teach everyone very esoteric subjects which do not relate to the development in India, of course they will look for jobs elsewhere. So, we need in the exercise of the New Education Policy to first try and assess what will be our need of agricultural scientists, what will be our need of technologists, of engineers, of other specialised training and then try to fit that back into the Education Policy.[19]

CONCLUSION

The potential of Indian science and technology for contributing to the objectives of modernisation and development is far greater than has been realised in the recent years. Substantial capabilities have been built, but it appears that these have not been brought to bear in full measure on the national tasks. Accordingly it has been decided that in the formulation of the Seventh Plan, this weakness will be addressed during the initial formulation of the plans and projects by identifying the scientific and technological inputs required and then initiating the necessary development work as part of the Plan. The practice of considering science and technology as a sector in its own right is to be given up and it should be ensured that the bulk of the science and technology effort is an integral part of all economic and strategic sectors.

In retrospect it can be seen that the achievements of various mission-oriented science and technology agencies have been substantial. The human expertise and know-how in basic technologies achieved in this process is applicable in many areas of industry, agriculture and rural development. It is true there is a whole host of problems in these areas, but the solution of them can be simplified by the application of technological knowledge available.[20]

The nation at present can take pride in having a government deeply committed to the development of science and technology. The late Prime Minister

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* For a diagrammatic illustration of the science and technology framework of the Central Government see Appendix 12.5.

[19] Information received from the Department of Science and Technology.

[20] Approach Paper to the Seventh Five-Year Plan, p. 8.

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Smt. Indira Gandhi had taken a keen interest in several of the programmes and was directly in charge of a number of Departments. Under the present Government also, the Prime Minister is directly in charge of the Ministries/ Departments of Science and Technology, Atomic Energy, Electronics, Ocean Development, Space and Environment and Forests. This will ensure that science and technology will get its due importance in the Government's policies and programmes. Also this will contribute to science and technology playing a greater than ever role in the development of the nation.

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APPENDIX 12.1A

Anticipated Expenditure for the Sixth Plan and Tentative Allocations for the Seventh Plan 1985–90

(Rs. in Crores)

Sl. No.	*Sectors*	*Sixth Five Year Plan (anticipated expenditure) 1980–85*	*Seventh Plan Outlay 1985–90*			
			Total	*Centre*	*States*	*UTs.*
1.	Atomic Energy (R&D)	234.59	315.00	315.00	..	..
2.	Environment and Ecology/ Prevention and Control of Air and Water Pollution and Ganga Action Plan	40.05	427.91	350.00	75.71	2.20
3.	Ocean Development (S&T)	87.04	100.00	100.00	..	..
4.	Science and Technology	269.93	543.09	458.43	81.57	3.09
	(a) Meteorology	47.22	88.78	88.78	..	..
	(b) Science and Technology	137.27†	429.66	345.00	81.57	3.09
	(c) Meteorology Component of INSAT Space Segment*	85.44	24.65	24.65	..	..
5.	Scientific and Industrial Research	221.71	355.00	355.00	..	..
	(a) CSIR	220.36	335.00	335.00	..	..
	(b) Schemes transferred from DST to DSIR	1.35**	20.00	20.00	..	..
6.	Space (S&T)	304.56	700.00	700.00	..	..
7.	Forensic Science and Police Wireless	..	25.00	25.00	..	..
	TOTAL	1157.88	2466.00	2303.43	157.28	5.29

NOTE: † Including Rs. 35.07 crores under States/UTs.
* The Department of Space has operational/budget responsibility for this programme.
** RE for 1984–85 only. This does not include Rs. 25 lakhs for TAAS which was transferred to DSIR later on.

SOURCE: *Seventh Five-Year Plan*, Vol. II, Annexure 17.2.

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APPENDIX 12.1B

Science and Technology Plan Outlay Under Scientific Departments

(Rs. in Crores)

Sl. No.	Scientific Deptt.	1986–87	1987–88		1988–89 (Plan outlay)			
		Actuals	Plan Outlay	Revised Estimates	Total	Centre	States	UT
1.	Atomic Energy (R&D)	46.31	67.00	58.95	80.00	80.00	—	
2.	Ocean Development (including I&M Component)	10.38	20.00	13.73	22.00	22.00	—	—
3.	Science & Technology (excluding Meteorology)	59.70*	75.68**	69.32†	97.81	75.50	21.62	0.69
4.	Bio-Technology	13.23	39.00	31.00	45.00	45.00	—	—
5.	Scientific and Industrial Research	64.20	75.00	75.00	84.00	84.00	—	—
	(a) CSIR	61.69	69.40	69.40	76.50	76.50	—	—
	(b) DSIR schemes	2.51	5.60	5.60	7.50	7.50	—	—
6.	Space	258.51	296.00	278.71	354.00	354.00	—	—
	(a) S&T	186.30	238.00	223.75	288.07	288.07	—	—
	(b) INSAT Component (including Meteorology & Communication)	72.21	58.00	54.96	65.93	65.93	—	—
7.	National Test Houses (Deptt. of Supply)	1.13	2.50	1.63	2.96	2.96	—	—
	Total	453.46	575.13	528.34	685.77	663.46	21.62	0.69

* Includes the expenditure of Rs. 18.01 crore under States & UTs and excludes the Capital Works Programmes of DST
** Includes the outlay of Rs. 19.68 crore under States & UTs
† Includes the expenditure of Rs. 19.32 crore under States & UTs

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APPENDIX 12.1C

Break-up of Central Plan Outlays under Scientific Departments by Schemes/Activities

(Rs. in Crores)

Sl. No.	Activities/Schemes/Projects/Programmes	1985–86		1986–87 Outlays
		BE	RE	
1	2	3	4	5
I.	ATOMIC ENERGY (R&D)	55.00	45.39	38.00
II.	OCEAN DEVELOPMENT			
1.	Research Expedition to South Indian Ocean (Antarctic Research)	9.50	7.10	9.50
2.	Polymetallic Nodules Programme	5.00	3.45	5.80
3.	Other Research Vessels	0.50	..	1.00
4.	All India Coordinated Projects on Remote Sensing, Telemetry data buoys system, Oceanographic towers etc.	0.50	0.15	0.50
5.	Manpower Training for Ocean Research & Management	0.50	0.36	0.70
6.	Establishment of Postgraduate Centres	0.75	0.45	0.50
7.	Other Schemes	3.25	1.39	2.00
	TOTAL-II	20.00	12.90	20.00
III.	SCIENCE & TECHNOLOGY			
1.	R&D Schemes	10.00	10.00	9.50
2.	Science & Society Related Schemes	1.30	1.25	1.20
3.	Support Facilities	1.50	1.55	1.50
4.	Infrastructure for Science Promotion	19.20	23.04	21.50
5.	Sectoral Programmes	5.30	3.78	3.05
6.	Biotechnology Research	18.00	13.00	20.00
7.	Entrepreneurship Development	0.75	0.85	1.15
8.	Scientific Surveys	5.10	0.20	5.75
9.	S&T Communication and Popularisation	1.00	1.00	1.00
10.	Technology Missions	2.00	0.10	2.00
11.	Other Schemes	6.55	3.92	2.85
	SUB-TOTAL (DST)	70.70	58.69	69.50
12.	Meteorology	10.90	9.34	12.00
13.	INSAT Space Segment	12.50	23.75	26.98
	TOTAL-III	94.10	91.78	108.48

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Appendix 12.1C *Contd.*

1	2	3	4	5
IV.	SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR)			
1.	National Laboratories	53.50	53.50	52.45
2.	Central Administration	2.00	2.00	1.80
3.	Special Research Schemes Scholarships and Fellowships (Grants-in-aid)	2.00	2.00	2.00
4.	Industrial Research Associations	0.50	0.50	0.50
5.	Facilities and Amenities including Staff Quarters	9.00	9.00	7.77
(b)	DSIR Schemes	2.60	2.70	2.98
	TOTAL-IV	69.60	69.70	67.50
V.	SPACE (S&T)	140.00	140.93	161.00
1.	FORENSIC SCIENCE & POLICE WIRELESS	3.00	2.96	3.83
	GRAND TOTAL	381.70	363.66	418.81

SOURCE: *Annual Plan*, 1986–87, Annexure 18.2.

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APPENDIX 12.2

GOVERNMENT OF INDIA

Scientific Policy Resolution

New Delhi, March 4, 1958

No. 131/CF/57—The key to national prosperity, apart from the spirit of the people, lies, in the modern age in the effective combination of three factors, technology, raw materials and capital, of which the first, is perhaps the most important, since the creation and adoption of new scientific techniques can, in fact, make up for a deficiency in natural resources, and reduce the demands on capital. But technology can only grow out of the study of science and its applications.

2. The dominating feature of the contemporary world is the intense cultivation of science on a large scale, and its application to meet a country's requirements. It is this, which, for the first time in man's history, has given to the common man in countries advanced in science, a standard of living and social and cultural amenities, which were once confined to a very small privileged minority of the population. Science has led to the growth and diffusion of culture to an extent never possible before. It has not only radically altered man's material environment, but, what is of still deeper significance it has provided new tools of thought and has extended man's mental horizon. It has thus influenced even the basic values of life, and given to civilisation a new vitality and a new dynamism.

3. It is only through the scientific approach and method and the use of scientific knowledge that reasonable materials and cultural amenities and services can be provided for every member of the community, and it is out of a recognition of this possibility that the idea of a welfare state has grown. It is characteristic of the present world that the progress towards the practical realisation of a welfare state differs widely from country to country in direct relation to the extent of industrialisation and the effort and resources applied in the pursuit of science.

4. The wealth and prosperity of a nation depend on the effective utilisation of its human and material resources through industrialisation. The use of human material for industrialisation demands its education in science and training in technical skills. Industry opens up possibilities of greater fulfilment for the individual. India's enormous resources of manpower can only become an asset in the modern world when trained and educated.

5. Science and technology can make up for deficiencies in raw materials by providing substitutes, or, indeed, by providing skills which can be exported in return for raw materials. In industrialising a country, a heavy price has to be paid in importing science and technology in the form of plant and machinery, highly paid personnel and technical consultants. An early and large scale

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development of science and technology in the country could therefore greatly reduce the drain on capital during the early and critical stages of industrialisation.

6. Science has developed at an ever-increasing pace since the beginning of the century, so that the gap between the advanced and backward countries has widened more and more. It is only by adopting the most vigorous measures and by putting forward our utmost effort into the development of science that we can bridge the gap. It is an inherent obligation of a great country like India, with its traditions of scholarship and original thinking and its great cultural heritage, to participate fully in the march of science, which is probably mankind's greatest enterprise today.

7. The Government of India have accordingly decided that the aims of their scientific policy will be:

(i) to foster, promote, and sustain, by all appropriate means, the cultivation of science, and scientific research in all its aspects—pure, applied and educational;

(ii) to ensure an adequate supply, within the country, of research scientists of the highest quality, and to recognise their work as an important component of the strength of the nation;

(iii) to encourage, and initiate, with all possible speed, programmes for the training of scientific and technical personnel, on a scale adequate to fulfil the country's needs in science and education, agriculture and industry, and defence;

(iv) to ensure that the creative talent of men and women is encouraged and finds full scope in scientific activity;

(v) to encourage individual initiative for the acquisition and dissemination of knowledge, and for the discovery of new knowledge, in an atmosphere of academic freedom;

(vi) and, in general, to secure for the people of the country all the benefits that can accrue from the acquisition and application of scientific knowledge.

The Government of India have decided to pursue and accomplish these aims by offering good conditions of service to scientists and according them an honoured position, by associating scientists with the formulation of policies, and by taking such other measures as may be deemed necessary from time to time.

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APPENDIX 12.3

GOVERNMENT OF INDIA

Technology Policy Statement

Preamble

Political freedom must lead to economic independence and the alleviation of the burden of poverty. We have regarded science and technology as the basis of economic progress. As a result of three decades of planning, and the Scientific Policy Resolution of 1958, we now have strong agricultural and industrial base and a scientific manpower impressive in quality, numbers and range of skills. Given clear-cut objectives and the necessary support, our science has shown its capacity to solve problems.

The frontiers of knowledge are being extended at incredible speed, opening up wholly new areas and introducing new concepts. Technological advances are influencing life-styles as well as societal expectations.

The use and development of technology must relate to the people's aspirations. Our own immediate needs in India are the attainment of technological self-reliance, a swift and tangible improvement in the conditions of the weakest sections of the population and the speedy development of backward regions. India is known for its diversity. Technology must suit local needs and to make an impact on the lives of ordinary citizens, must give constant thought to even small improvements which could make better and more cost-effective use of existing materials and methods of work. Our development must be based on our own culture and personality. Our future depends on our ability to resist the imposition of technology which is obsolete or unrelated to our specific requirement and of policies which tie us to systems which serve the purposes of others rather than our own, and on our success in dealing with vested interests in our organisations: government, economic, social and even intellectual, which bind us outmoded systems and institutions.

Technology must be viewed in the broadest sense, covering the agricultural and the services sectors along with the obvious manufacturing sector. The latter stretches over a wide spectrum ranging from village, small-scale and cottage industries (often based on traditional skills) to medium, heavy and sophisticated industries. Our philosophy of a mixed economy involves the operation of the private, public and joint sectors, including those with foreign equity participation.

Our directives must clearly define systems for the choice of technology, taking into account economic, social and cultural factors along with technical considerations; indigenous development and support to technology, and utilisation of such technology; acquisition of technology through import and its subsequent absorption, adaptation and upgradation; ensuring competitiveness at international levels in all necessary areas; and establishing links between the

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various elements concerned with generation of technology, its transformation into economically utilisable form, the sector responsible for production (which is the user of such technology), financial institutions concerned with the resources needed for these activities, and the promotional and regulating arms of the Government.

This Technology Policy Statement is in response to the need for guidelines to cover this wide-ranging and complex set of interrelated areas. Keeping in mind the capital-scarce character of a developing economy it aims at ensuring that our available natural endowments, especially human resources, are optimally utilised for a continuing increase in the well-being of all sections of our people.

We seek technological advancement not for prestige or aggrandisement but to solve our multifarious problems and to be able to safeguard our independence and our unity. Our modernisation, far from diminishing the enormous diversity of our regional traditions should help to enrich them and to make the ancient wisdom of our nation more meaningful to our people.

Our task is gigantic and calls for close coordination between the different departments of the Central and State Governments and also of those concerned, at all levels, with any sector of economic, scientific or technological activity, and not, least, the understanding and involvement of the entire Indian people. We look particularly to young people to bring a scientific attitude of mind to bear on all our problems.

2 Aims and Objectives

2.1 Aims

The basic objectives of the Technology Policy will be the development of indigenous technology and efficient absorption and adaptation of imported technology appropriate to national priorities and resources. Its aims are to:

(a) attain technological competence and self-reliance to reduce vulnerability, particularly in strategic and critical areas, making the maximum use of indigenous resources;
(b) provide the maximum gainful and satisfying employment to all strata of society, with emphasis on the employment of women and weaker sections of society;
(c) use traditional skills and capabilities making them commercially competitive;
(d) ensure the correct mix between mass production technologies and production by the masses;
(e) ensure maximum development with minimum capital outlay;
(f) identify obsolescence of technology in use and arrange for modernisation of both equipment and technology;
(g) develop technologies which are internationally competitive, particularly those with export potential;

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(h) improve production speedily through greater efficiency and fuller utilisation of existing capabilities and enhance the quality and reliability of performance and output;
(i) reduce demands on energy, particularly energy from non-renewable sources;
(j) ensure harmony with the environment, preserve the ecological balance and improve the quality of the habitat; and
(k) recycle waste material and make full utilisation of by-products.

2.2 Self-Reliance

In a country of India's size and endowments, self-reliance is inescapable and must be at the very heart of technological development. We must aim at major technological break-through in the shortest possible time for the development of indigenous technology appropriate to national priorities and resources. For this, the role of different agencies will be identified, responsibilities assigned and the necessary linkages established.

2.3 Strengthening the Technology Base

Research and Development, together with science and technology education and training of a high order, will be accorded pride of place. The base of science and technology consists of trained and skilled manpower at various levels, covering a wide range of disciplines, and an appropriate institutional, legal and fiscal infrastructure. Consolidation of the existing scientific base and selective strengthening of thrust areas in it are essential. Special attention will be given to the promotion and strengthening of the technology base in newly emerging and frontier areas such as information and materials sciences, electronics and bio-technology. Education and training to upgrade skills are also of utmost importance. Basic research and the building of centres of excellence will be encouraged.

Skills and skilled workers will be accorded special recognition. The quality and efficiency of the technology generation and delivery systems will be continuously monitored and upgraded. All of this calls for substantial financial investments and also strengthening of the linkages between various sectors (educational institutions, R&D establishments, industry and governmental machinery).

3 Priorities

3.1 Need for Perspective Planning

The time scales involved in the generation of technology are long, even with imported elements. Therefore, relevant technologies in all areas of priority, particularly where large investments are to be made, should be clearly identified well in advance. The cost and time element involved in the import of technology and indigenous development will be given consideration. Components which

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could be assigned to the various institutions which are capable of developing them or which could be built up for such activities will be identified. Ministries concerned with large investments and production activities in areas such as food, health and energy will be provided with appropriate technical support through suitably structured S&T groups.

3.2 Employment

Human resources constitute our richest endowment. Conditions will be created for the fullest expression and utilisation of scientific talent. Measures will be taken for the identification and diffusion of technologies that can progressively reduce the incidence of poverty and unemployment, and of regional inequalities. The application of science and technology for the improvement of standards of living of those engaged in traditional activities will be promoted, particularly household technologies. Technologies relevant to the cottage, village and small industries sector will be upgraded. In the decentralised sector labour must be diversified and all steps taken to reduce drudgery. In all sectors, the potential impact on employment will be an important criterion in the choice of technology.

3.3 Energy

Energy constitutes an expensive and sometimes scarce input. Therefore, the energy requirements both of a direct and indirect nature for each product and each production activity and the associated technology employed will be analysed. Measures will be devised to avoid wastage or non-optimal use of energy. Fiscal measures as necessary will be introduced to ensure these. Research and Development in the energy sector will aim at improving the efficiency of its production, distribution and utilisation, as well as improvement of efficiency in processes and equipment.

3.4 Efficiency and Productivity

Technologies already employed will be evaluated on a continuing basis to realise maximum benefits in terms of increased production and lower costs, specially in the public sector enterprises. Every effort should be made to utilise by-products and wherever possible to recycle waste materials, especially those from urban areas. Programmes to make use of the easily available and less costly materials will be supported.

3.5 Environment

Development should not upset the ecological balance for short as well as long-term considerations. Poorly planned efforts to achieve apparently rapid development, ignoring the long-term effect of many technologies on the environment, have resulted in serious ecological damage. It is, therefore, essential to analyse the environmental impact of the application of each technology. Due regard will be given to the preservation and enhancement of the environment in the

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choice of technologies. Measures to improve environmental hygiene will be evolved.

3.6 Some Specific Areas

In technology development special emphasis will be focussed on food, health, housing, energy and industry. In particular, stress will be laid on:

- agriculture including dry-land farming;
- optimum use of water resources, increased production of pulses and oilseeds;
- provision of drinking water in rural areas, improvement of nutrition, rapid reduction in the incidence of blindness, eradication of the major communicable diseases (such as leprosy and tuberculosis), and population stabilisation;
- low-cost housing;
- development and use of renewable non-conventional sources of energy; and
- industrial development.

4 Indigenous Technology

4.1 Importance of Technology Development

Fullest support will be given to the development of indigenous technology to achieve technological self-reliance and reduce the dependence on foreign inputs, particularly in critical and vulnerable areas and in high value-added items in which the domestic base is strong. Strengthening and diversifying the domestic technology base are necessary to reduce imports and to expand exports for which international competitiveness must be ensured.

4.2 Inventions

The spirit of innovation and invention is the driving force behind all technological change. We must awaken our science and technology to the exciting challenges of our times, provide incentives to encourage inventors, and direct their efforts to areas of special importance. The system of rewards and incentives will be strengthened for inventions, innovations and technological breakthroughs and their utilisation. The fullest opportunity will be provided to make use of inventions.

4.3 Enhancing Traditional Skills and Capabilities

Traditional skills and capabilities will need to be upgraded and enhanced, using knowledge and techniques generated by advances in science and technology. Technologies which will result in low-cost production and in products marketable close to the point of manufacture, particularly in the rural sector,

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will be promoted. Support will be given to technologies which reduce pressure on items in short supply and utilise improved local materials and methods. Government will give preference to products of such technologies in its own purchases. The adoption of technologies that can promote decentralised production will be helped through the support to design, marketing, quality control and other services.

4.4 Ensuring Timely Availability

The time cycle from scientific research to utilisation is a long one. Hence the need to initiate action well in advance to identify and ensure timely availability and delivery of new technologies. Encouragement and support (fiscal, commercial and administrative) will be given to the production and user organisations to be associated with and participate in technology development efforts at appropriate stages.

4.5 Upgradation to Prevent Obsolescence

Technology is constantly on the move. The base of indigenous technology should be capable of utilising world-wide advances and adapting them to local needs. The creation and strengthening of institutional structures for keeping track of international developments will receive urgent attention.

A strong central group will be constituted to undertake technology forecast and technology assessment studies and will *inter alia* draw up programmes of purposeful research. Arrangements will be made to provide high-level scientific advice in major sectors of the economy. Where big investments are involved or a large volume of production is envisaged, it will be incumbent on the Ministry or agency concerned to provide a technology forecast covering its requirements over a ten-year or longer period and evolve a strategy for development based on priorities.

4.6 Increasing the Demand for Indigenous Technology

Our country has already invested significant amounts in setting up research and development facilities as well as design consultancy and engineering capabilities. The technological potential inherent in this system of interlinked capabilities must be fully utilised, and in turn provide a fillip for further development from within the system. Incentives will, therefore, be provided to users of indigenously developed technology, and for products and processes resulting for such use.

4.7 Preferential Treatment

In view of the cost of technology development and the time necessary for successful marketing of a new or improved product, indigenously developed items are invariably at a disadvantage compared with imported products or

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those based on imported technologies and brand names. Support must therefore be provided through fiscal and other measures, for a limited period, in favour of products made through indigenously developed technologies, care being taken to ensure quality.

4.8 Fiscal Incentives

Suitable financial mechanisms will be established to facilitate investment on pilot plants, process demonstration units and prototype development in order to enable rapid commercial exploitation of technologies developed in laboratories. Linkages between scientific and technological institutions and development banks will be strengthened. Gaps in technology will be identified and suitable corrective measure taken with adequate allocation of resources. Fiscal incentives will be provided in particular to promote inventions; increase the use of indigenously developed technology; enhance inhouse research and development in industry; and efforts directed to absorb and adapt imported technology.

4.9 Design Engineering

Capabilities in design engineering are essential for the translation of know-how to commercial production. This is particularly important in areas relating to agricultural production; agro-industries; metallurgical, chemical and petrochemical processes; machine tools; industrial machinery and capital goods as well as for the construction and erection of entire plants. Building up and enhancing these capabilities will have a catalytic beneficial impact on the utilisation of indigenous efforts that have resulted in product and process know-how. Existing design engineering capabilities will be strengthened and upgraded, and interaction encouraged between design engineering organisations, academic and research institutions and industry. Wherever gaps exist, design engineering capabilities will be developed and nurtured.

4.10 Engineering Consultancy

Engineering consultancy is a vital area for ensuring speedy technological and industrial development. It ensures the appropriate utilisation of indigenous materials, plant and machinery. Engineering consultancy provides an essential link between R&D institutions and industry, and thus promotes effective transfer of technology. Capability for total systems engineering process development and project management should be developed with collaboration if required. Wherever capability exists, utilisation of Indian consultancy engineering organisations will be promoted. Even where foreign technical collaboration or consultancy is considered unavoidable, association of designated Indian consulting engineering organisations would be preferred. Indigenous engineering consultancy, in both private and public sectors, will be promoted on a sound professional basis in the context of the overall national perspective of technological self-reliance.

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4.11 In-house R&D

In-house R&D units in industry provide a desirable and essential interface between efforts within the national laboratories and the educational sector as well as production in industry. Appropriate incentives will be given to the setting up of R&D units in industry and for industry including those on a cooperative basis. Enterprises will be encouraged to set up R&D units of a size to permit the accomplishment of major technological tasks.

5 Technology Acquisition

5.1 Mix of Indigenous and Imported Technology

A policy directed towards technological self-reliance does not imply technological self-sufficiency. The criterion must be national interest, Government policy will be directed towards reducing technological dependency in key areas.

Advantage should be taken of technological developments elsewhere. This can also be achieved through well defined collaborative arrangements in research and development.

At any given point of time, there will be a mix of indigenous and imported technology. However, technology acquisition from outside shall not be at the expense of national interest. Indigenous initiative must receive due recognition and support.

In the acquisition of technology, consideration will be given to the choice and sources of technology, alternative means of acquiring it, its role in meeting a major felt need, selection and relevance of the products, costs and related conditions. A National Register of Foreign Collaboration will be developed to provide analytical inputs at various stages of technological acquisition.

5.2 Principles of Acquisition and Technology Assessment

Where the need to import technology is established, every effort should be made to ensure that it is of the highest level, consistent with requirements and resources. The technology import will be so planned as to have effective transfer of basic knowledge (know-why) and to facilitate further advancement.

Where the import of technology is contemplated, the level to which technology has been developed, or is in current use, within the country, shall be first evaluated. Lists of technologies that have been adequately developed to the extent that import is unnecessary will be prepared and periodically updated; in such areas no import of technology would normally be permitted; and the onus will be on the seeker of foreign technology, be it industry or a user Ministry, to demonstrate to the satisfaction of the approval authority that import is necessary.

Technology assessment system will be reviewed. A technology assessment mechanism consisting of competent groups will render advice in all cases of technology import relating to highly sophisticated technology, large investments

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and national security. Aspects of employment, energy, efficiency and environment will be kept in view.

The basic principles governing the acquisition of technology will be:

(a) Import of technology, and foreign investment in this regard, will continue to be permitted only on a selective basis where: need has been established, technology does not exist within the country; the time taken to generate the technology indigenously would delay the achievement of development targets.

(b) Government may, from time to time, identify and notify such areas of high national priority, in respect of which procedures would be simplified further to ensure timely acquisition of the required technology.

(c) There shall be a firm commitment for absorption, adaptation and subsequent development of imported know-how through adequate investment in research and development to which importers of technology will be expected to contribute.

5.3 Unpacking

Technology to fulfil a particular need consists of many components. It is necessary to develop capability to break down the total package of technology required for a purpose into components, some of which may be readily available or could be indigenously developed, and others that will need to be imported. Norms and guidelines for such unpackaging will be evolved.

5.4 Absorption of Technology

There shall be a commitment to ensure an adequate scale of investment in R&D for the absorption, adaptation and, wherever, possible, improvement on and generation of new technology, making fullest use of overall national capabilities. Only thus can self-reliance be ensured and a technology generation process established firmly. Appropriate mechanisms will be evolved at the stage of technology assessment to ensure the absorption of imported technology.

5.5 Technology Information

The availability of an efficient system of collection and analysis of relevant technological information, including cost and other economic aspects, is a prerequisite for the appropriate choice of technologies. This will considerably enhance the possibility of obtaining favourable terms and conditions in acquisition of technology. Such a technology information base will be established.

6 Technology Transfer

6.1 Diffusion

Special efforts need to be made for the diffusion of technology in use to all beneficiaries who can employ them optimally. Appropriate measures shall be

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evolved to facilitate technology diffusion, including: horizontal transfer; technological support for ancillaries from large units; technology inputs to small units; and upgradation of traditional skills and capabilities.

6.2 International Competitiveness and Technology Exports

It is necessary to maintain international competitiveness in products, services and technologies that have export potential. Condition for the marketing of indigenous technology and of products based on it will be improved. It is important in all such cases to conform to the highest international standards.

6.3 Technical Cooperation among Developing Countries

A concerted effort will be made to participate fully in technical cooperation among developing countries. Encouragement will be provided for participation in technology development programmes with other developing countries which can contribute to mutual national development.

6.4 Protection: Legislative Framework

Development of technology calls for large investments and often involves considerable risk. Encouragement will be given to obtaining necessary protection in all cases of indigenous technology development. A mechanism will be set up to ensure that national interests arising from the generating of technology are fully protected internationally in terms of industrial property rights.

7 Implementation

The success of the Technology Policy and the speed with which the various facets of the policy are implemented will depend to a considerable extent on a system for efficient monitoring review and guidance and a scheme of incentives and disincentives.

Government will evolve instruments for the implementation of this Technology Policy and spell out in detail guidelines for Ministries and agencies of Government as well as for industries and entrepreneurs.

Success in implementation demands a conscious integrated approach covering technology assessment, development, acquisition, absorption, utilisation and diffusion and connected aspects of financing, based on overall national interests, priorities and the attainment of the most challenging technological goals.

Above all the entire population must be imbued with self-confidence and pride in national capacity.

Indian science and technology must unlock the creative potential of our people and help in building the India of our dreams.

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APPENDIX 12.4

GOVERNMENT OF INDIA

Ocean Policy Statement

The ocean are known to be our last frontiers. Our long coast and the sense of adventure of our ancients fostered a great maritime tradition. The Indian Ocean which washes our shores provides opportunities which need to be utilised. For success in ocean development, the entire nation should be permeated by the spirit of enterprise and the desire to explore the frontiers of knowledge. Our experience in other fields of scientific endeavour will help our efforts in ocean development. What is necessary is a policy and structure to facilitate a dynamic thrust keeping in view developments in other parts of the world.

2. The adoption, by an overwhelming majority of nations of the Convention of the UN Conference on the Law of the Seas has established a new international order for the oceans. This extends the economic jurisdiction of coastal states to an area ranging from 200 to 350 miles from the coastline. According to this regime, nearly 2 million square kilometres of area, or very nearly two-thirds of the land mass has come under India's national jurisdiction. In this area, the exclusive right to utilise living and non-living resources vests with nation. Besides, India has been recognised as a "Pioneer Investor" in ocean mining. This gives India the exclusive right to operate in an area of upto 150 thousand square kilometres in the high seas for the recovery and processing of polymetallic nodules.

3. For ages, the sea has enabled our people to sail to near and distant lands and has been a source of livelihood to large numbers of people. Even now Indian public and private enterprises do use ocean resources. The country is producing significant quantities of fish and hydrocarbons from the sea and much scientific work has been done in collecting basic knowledge and information about the sea and sea-bed and in surveying, charting and exploiting it. Progress has also been made in construction and development of offshore structures.

4. The vastness, complexity and uncertainty of the ocean environment calls for a coordinated, centralised and highly sophisticated development response. This should be based on adequate knowledge of marine space (sea-bed, water and air columns included) as a fundamental prerequisite to the control, management and utilisation of the rich and varied natural resources available in the sea. In addition to basic knowledge to determine the potentialities inherent in the Indian sea-space, we have to develop appropriate technologies to harness these resources. A supporting infrastructure has to be built. Effective systems of management and control of the entire set-up are also necessary.

5. We need to map living resources, prepare an inventory of commercially exploitable fauna and to map and assess the availability of minerals from the

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deep sea. The supporting infrastructure and incentives required are research vessels of different types, manpower, well-laid out programmes of resource exploitation advanced technology and everything necessary to promote the growth of ocean technology. In the management sector, the high seas and the Exclusive Economic Zone (EEZ) upto 320 kilometres have to be looked into for the exploitation of the wealth occurring therein.

6. The main thrust should be on the optimal utilisation of living resources like fish and sea weeds, exploitation of non-living resources such as hydrocarbons and heavy placer deposits, harnessing of renewable resource of ocean energy from waves, temperature differences in the water column, tidal heights and salinity gradients and the collection and processing of polymetallic nodules from the deep sea.

7. Marine development is linked with scientific and technological achievements in other areas. Hence while we develop basic marine science and technology, i.e. technology for marine environment, our technological advances have to be geared to the utilisation and preservation of the marine environment. The extension of national frontiers by an area of 2 million square kilometres of ocean space and the consequent access to new sources of energy, minerals and food, requires great strides in ocean engineering, specially in tasks related to structures, materials, instrumentation, submersibles and systems of propulsion of ships. The exploitation of natural food resources such as fish and sea weeds, and the generation of additional food resources by cultivation, also need scientific methods of aquaculture and mariculture. To survey and predict the ocean environment, the main tasks necessary are seafloor mapping, charting, geodesy, ocean dynamics, currents, waves, cyclones, marine fauna, chemistry and physics of the oceans and sea-bed mineral mapping, delineation and assessment. Research in all these areas must examine the various processes and their origins so as to have a fundamental understanding, ensuring predictive capabilities. Marine science and technology has also to look beyond the current state-of-the-art to achieve major technological break-throughs in the future.

8. Besides research and development in basic science we should survey the deeper part of the ocean. Similarly in the deep sea detailed survey and sampling in the regions of EEZ and the adjacent ocean will be necessary to locate and evaluate the rich and economically viable deposits of polymetallic nodules, heavy metals, fossil placers and phosphorite deposits. The gathering of data from surveys should be coordinated and a cost-effective system of integrated surveys established.

9. Much more needs to be done for the development of indigenous technology for the exploitation of fish from deeper waters. This also means setting up of infrastructure facilities and services to operate large-sized fishing vessels.

10. An important component of the development programme should be the acquisition of technology. To be self-reliant, such technologies would have to be largely developed, tested and operated indigenously. Technologies relating to instrumentation, diving systems, position fixing and position maintenance, materials development, oceanic data collecting devices, anti-erosion capabilities,

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submersibles, energy and energy-saving devices are priority items. Several new technologies will have to be commercialised and made cost-effective.

11. Infrastructural support forms an essential prerequisite for ocean development. The variegated infrastructure already available in the country will have to be appropriately augmented, and more particularly in basic supporting facilities like safety and rescue at sea, navigated chains, communication networks, development of appropriate maps and charts etc. Infrastructural support for providing a complete and reliable information system through a network of data centres on marine resources, processing and marketing systems, advanced technologies and financial assistance would also be necessary. This requires a broadening and strengthening of available infrastructural facilities. Provisions of adequate ports and harbours, ship-building and ship-repair facilities will be needed in addition to adequate skilled manpower in various sectors of development.

12. Surveillance and conservation of the marine environment and its resources call for an integrated legal framework and its concomitant enforcement. Several laws have already been promulgated regarding the maritime zone, fisheries, etc. The Coast Guard Organisation looks after the enforcement aspects of several of these legislative measures. The coordinating mechanisms of the overall structure of legislation will have to be suitably strengthened under the aegis of the Department of Ocean Development.

13. In the light of this, we must have a data base to coordinate efforts made by different agencies. This is all the more necessary because of the rapid growth of information in ocean science and technology. A centralised data system will be set up by the Department of Ocean Development with a proper mechanism for collection, collation and dissemination of information acquired both indigenously and from foreign sources.

14. The creation of a self-reliant technological base puts a heavy demand on fully trained personnel. The training of skilled manpower is to be adequately planned. Young scientists, technologists and engineers will be encouraged to participate in the programme of ocean development and steps will be taken to induce Indian scientists from within the country and abroad to participate in it.

15. Existing agencies will have to be appropriately strengthened to meet the demands of this growing challenge. The Department of Ocean Development will function in conjunction with other concerned agencies as a focal point to promote institutional capability in areas where significant work is lacking. The complex programme that ocean development entails will require well-designed management and institutional extension of the Department of Ocean Development with sufficient powers *vis-a-vis* other agencies to help proper and speedy ocean development, which enables India to be in the forefront of the International effort. This would also mean close cooperation with both developing and developed countries in a spirit of understanding of the concept that the oceans are a common heritage of humankind.

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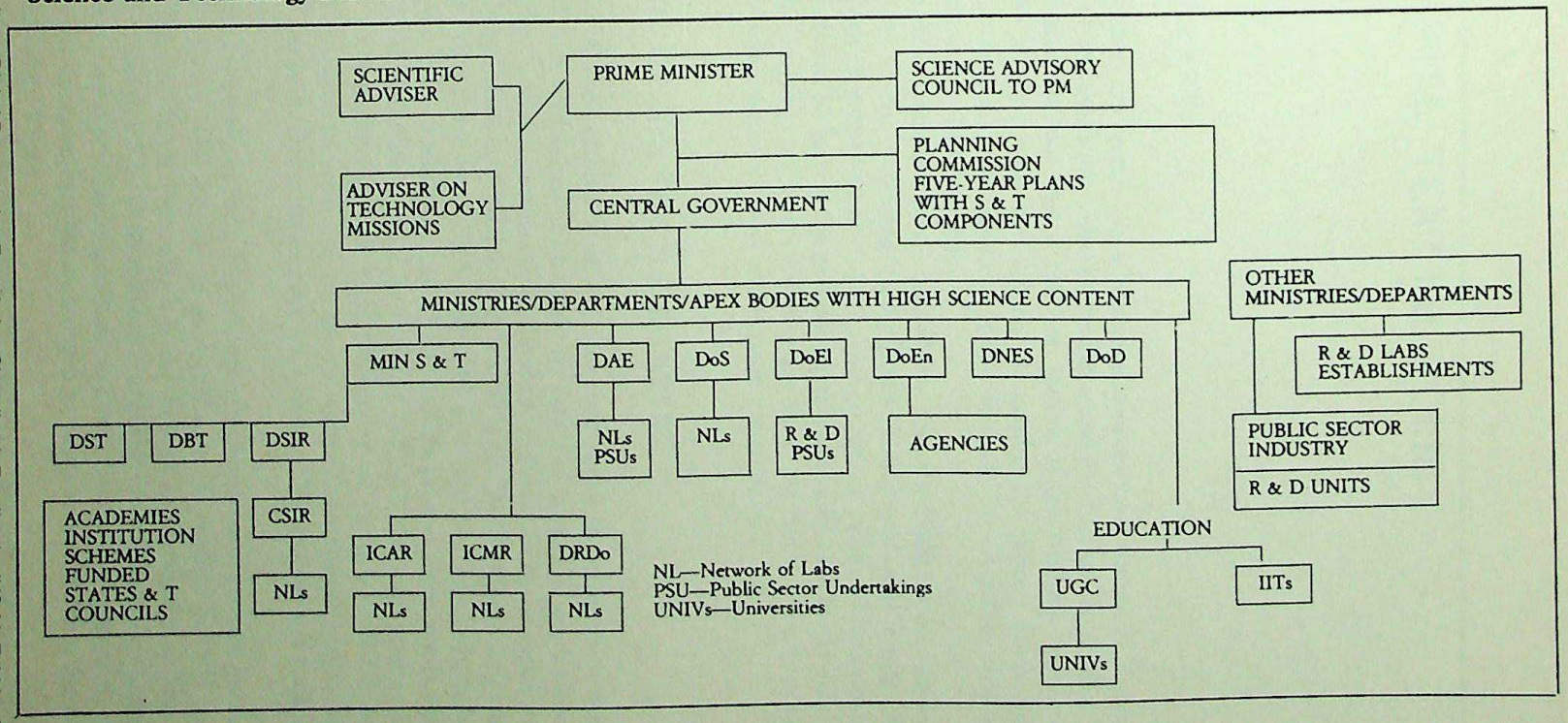
APPENDIX 12.5

Science and Technology Framework of Central Government



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13

NATIONAL TEXTILE POLICY

INTRODUCTION

Textile industry occupies a place of unique importance in the national economy by virtue of its significant share in the industrial production, large work force employed and the fact that it not only caters to the clothing needs of the community but also generates substantial surplus for export. Sustained and balanced growth and development of this industry is, therefore, vital to the economic growth of the country.

The textile industry comprises not only the organised mill sector, but also the decentralised sector including powerlooms, handlooms and khadi. These together provide employment to 133 lakh persons, of whom 13 lakh are in the organised sector, 35 lakh in the powerloom sector and 85 lakh in the handloom sector. These sectors together earn annually about Rs. 3800 crore from export of yarn, fabrics, made-ups and ready-made garments.

GROWTH OF THE TEXTILE INDUSTRY

The origin of the cotton textile industry dates back to 1818 when the first cotton mill was established at Fort Gloster near Calcutta. The grant of protection and the Swadeshi movement enabled the industry to make rapid strides. The number of mills increased to 389 in 1937 with 2,02,464 looms. At the end of March 1988, there were 1045 mills (762 spinning and 283 composite). In 1947, cotton yarn production was 590.70 million kg and piece goods production was 3500.90 million metres. In the year 1987–88, the total production of yarn was 1555 million kg and total production of cloth was 12992 million metres. At present the share of composite mills in the annual production of cloth is 23 per cent. Powerlooms have got a share of 50 per cent and handlooms 27 per cent.

The textile industry in India has witnessed a phenomenal growth during the last three decades. The spindleage increased from 11 million in 1951 to over 26.19 million in March 1988 which is the highest in the world, followed by China (18 million), USA (17.88 million) and USSR (16 million). The growth of loomage has, however been insignificant as a result of the Government's policy to protect the decentralised handloom and powerloom sector from the impact of the organised sector.

The Seventh Five-Year Plan target of additional spindles was placed at 0.934 million. The target of total spinning capacity to be achieved by the end of the

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terminal year (1989–90) of the Plan was placed at 24.369 million. Against this, the capacity already installed was estimated at 26.19 million spindles at the end of March 1988. Thus, the target for additional spinning capacity during the Seventh Plan had been exceeded even before the beginning of the terminal year of the plan period. Keeping in view the above facts, a policy decision was taken to restrict the addition to the spinning capacity to the minimum necessary. Accordingly, the "Delicensing Scheme" introduced in 1975 was withdrawn with effect from September 1, 1984. Setting up of spinning mills has thus been brought under the regular licensing provisions.

In order to fulfil the objective of meeting the clothing requirements of a growing population, the target of cloth production at the end of the Seventh Plan was fixed at 14500 million metres after taking into account the rise in per capita demand and the estimated population in 1989–90. This involved an increase in cloth production of 900 million metres or 6.62 per cent over the 1984–85 figure of 13600 million metres. The increase was sought to be achieved primarily by expansion and development in the handloom sector, which was assigned a production target of 4600 million metres involving a 12.2 per cent growth during the plan period.

EXPORT OF TEXTILE ITEMS

The textile industry plays a significant role in the export trade of the country. This industry contributes about 25 per cent of total export earnings. The exports of almost all the sectors of textile industry surpassed the export targets fixed for 1987–88. The exports in 1987–88 at Rs. 3784.38 crore were an all time high when compared with export of previous years. Among the items which registered a considerable growth in exports were ready-made garments, cotton textiles, (man-made/powerloom) especially in the area of fabrics and cotton yarn, cotton handloom textiles, man-made textiles and silk textiles. The export of ready-made garments were of the order of Rs. 2000 crore, cotton textiles (MM/PL) Rs. 1036 crore and man-made textiles Rs. 165.18 crore as against export targets of Rs. 1450 crore, Rs. 480 crore and Rs. 75 crore respectively during 1987–88.

Government has taken several steps for increasing exports of textiles and textile products which included liberalisation of import of high technology machinery, soft credit for funding modernisation projects, Cash Compensatory Support (CCS), duty drawback, inclusion of various inputs and raw materials which would enhance the export capabilities of the textile sector under OGL (Open General Licence), encouragement in setting up 100 per cent export-oriented units and encouraging promotional activities by sponsoring and funding market studies, participation in international fairs and exhibitions, etc., with a view to exploring possibilities of diversification of products and territories.

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MODERNISATION AND REHABILITATION OF TEXTILE INDUSTRY

Sickness in the textile industry is endemic. Out of the 1045 spinning and composite mills, the Government of India had to take over the management of a large number of sick units under the National Textile Corporation. Despite large funds pumped in by the Government to revitalise these units, only a few were making profits, while the majority were incurring huge losses. There were in May 1988, 133 closed mills, which had rendered over 1.57 lakh labourers unemployed.

Growing sickness is not of recent origin, as is seen from the fact that there were 151 uneconomic units as early as 1951. The various factors that had contributed to the sickness were the obligation of the composite mills to supply a certain percentage of their production as controlled cloth at concessional prices—as a social obligation—for a prolonged period; high cost of cotton, man-made fibres and stores; higher electricity charges; the mounting wage bill; surplus labour; high incidence of excise duties; periodic recession in demand; the shift in consumer preference from cotton to blended and man-made fabrics; outmoded machinery; unhealthy competition from the mushrooming growth of the powerlooms due to excise duty concession given to them and its evasion; and mismanagement of mills in general.

Such of those well-managed mills, which had the foresight to diversify in time to the production of blended and man-made fabrics and which undertook modernisation programmes remained viable. Others were afflicted by varying degrees of sickness.

Textile Modernisation Fund Scheme

In order to combat sickness and to remain viable and meet the clothing requirements of the masses, the cotton textile industry requires substantial input of modernisation. The major incentive to modernisation is the Textile Modernisation Scheme.

A Textile Modernisation Fund of Rs. 750 crore has been created to meet the modernisation requirements of the textile industry over the next five years. The scheme is being operated by the IDBI with effect from August 1, 1986. Almost 75 per cent of the fund amounting to around Rs. 560 crore would be provided to weak units that are viable. The remaining 25 per cent of the fund will be for providing modernisation assistance to healthy units on usual terms applicable to such loans disbursed by the IDBI. For the profit making units, the facilities provided in the long-term fiscal policy promoting industry to set apart 20 per cent of their pre-tax profits to be deposited with the IDBI and used for the purpose of modernisation and also to encourage internal generation of resources for this purpose are applicable. In case of weaker units the main problem faced by them for availing of modernisation assistance has been their inability to provide the required promoter's contribution, while borrowing funds for

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modernisation from IDBI. It has, therefore, been decided that a part of fund, about Rs. 100 crore, will be earmarked for providing special loan to selected but viable units towards meeting part of their promoter's contribution. This would enable the weak units to avail of the balance of Rs. 460 crore of the fund by way of modernisation loans on usual terms (i.e. 11.5 per cent per annum for assistance upto Rs. 4.00 crore per company). The special concessional loan will carry an interest of 6 per cent per annum and will be repayable over a period of 12 years including a moratorium of six years. As on April 30, 1988, a total number of 210 applications amounting to Rs. 821.21 crore were received for availing of assistance under the scheme. Of these, 119 applications for an amount of Rs. 537.78 crore were sanctioned. In 74 cases a sum of Rs. 196.95 crore was disbursed.

National Textile Corporation

The National Textile Corporation Limited (NTC) was incorporated in April 1968, with the primary objective of managing the affairs of the sick textile undertakings taken over by the Government. It was also envisaged to rehabilitate and modernise these mills, by expanding them wherever required, to make them economically viable. The process started with only 16 mills under Government management in 1968. This went upto 103 during 1972–73. With effect from April 1974 all the Government managed mills were nationalised by an Act of Parliament and their ownership was transferred to NTC. As at present, there are 125 mills under NTC, out of which 103 are nationalised and 22 are managed units.

During the financial year 1986–87, NTC suffered a net loss of Rs. 214.00 crore and during 1987–88, the loss was about Rs. 263.43 crore. This was in respect of both managed and nationalised mills of NTC.

During the Seventh Five-Year Plan period, the Planning Commission has approved an outlay of Rs. 117 crore for modernisation and labour rationalisation.

Fiscal Measures Taken by Government to Encounter Industry's Difficulties

The Government has taken the following financial measures to help the industry to encounter the present difficulties being faced by it:

1. Rayon grade wood pulp was fully exempted from import duty with effect from March 17, 1985.
2. Import duty on Viscose Filament Yarn upto 600-D was reduced from 55 per cent to 45 per cent in the 1988–89 Budget.
3. Import duty on DMT/PTA was reduced from 190 per cent + Rs. 3/kg to 190 per cent with effect from May 5, 1987.
4. Import duty on Polyester Filament Yarn was reduced from 230 per cent to 205 per cent in the 1988–89 Budget.
5. Import duty on Nylon Filament Yarn upto 833-D was reduced in the 1988–89 Budget from 145 per cent to 130 per cent.

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6. Import duty on Polyester Staple Fibre was reduced from 190 per cent + Rs. 9/kg to 180 per cent + Rs. 7/kg in the 1988–89 Budget.
7. Import duty on Acrylic Staple Fibre was reduced in the 1988–89 Budget from 155 per cent + Rs. 12.50/kg to 145 per cent + Rs. 10/kg.
8. Excise duty on Polyester Staple Fibre was reduced from Rs. 45/kg to Rs. 25/kg. Again in the 1988–89 Budget, it was reduced from Rs. 25/kg to Rs. 15.66/kg.
9. Excise duty on Acrylic Staple Fibre was reduced from Rs. 17.50/kg to Rs. 10/kg. In the 1988–89 Budget, it was again reduced from Rs. 10/kg to Rs. 8.33/kg.
10. Excise duty on Viscose Staple Fibre for cotton blend was reduced from Rs. 7/kg to Rs. 5.22/kg in the 1988–89 Budget.
11. Excise duty on Polyester Filament Yarn was reduced from Rs. 83.75/kg to Rs. 56.12/kg in the 1988–89 Budget.
12. Excise duty on Nylon Filament Yarn was reduced from Rs. 70/kg to Rs. 41.76/kg in the 1988–89 Budget.

TEXTILE POLICY, 1978

Over the years, the performance of the textile industry had not been satisfactory. In the organised sector, productivity had fallen in a large number of units. The incidence of sickness had been growing, and the progress of modernising obsolete equipment had been tardy. The cost of textiles had been rising steadily, while the per capita consumption of cloth had been falling. In the less organised and decentralised sector of handloom, khadi and sericulture, difficulties regarding the supply of yarn, suitable marketing arrangements and similar factors had resulted in a less than adequate growth rate. Difficulties regarding availability of yarn at reasonable prices, marketing problem and competition from the powerlooms had been some of the reasons for this. Production of woollen fabrics had not kept up with the demand, and prices had prevailed at a very high level. The sericulture industry had been stagnating, despite its enormous potential for providing gainful employment.

The absence of clearcut and unambiguous policies relating to the various facets of this diverse industry, and the failure to set definite time-bound objectives, had been largely responsible for this unhappy situation. Therefore for a long time the need of a properly regulated policy for the textile industry had been felt. This was fulfilled by the announcement of the Textile Policy by the Government on August 7, 1978[1]. This policy aimed at making available larger quantities of quality cloth at reasonable prices and encouraging proper industrial growth through the decentralised and employment oriented sectors of handloom and khadi. In addition the policy indicated the approach to be

[1] For text of the Policy Statement please see Appendix 13.1.

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followed in bringing about the desired balance between cotton and non-cotton fibres.

The salient features of the Textile Policy were as given below:

(i) Handloom and khadi sectors were assigned the primary role for fulfilling the textile needs of the country;
(ii) Production of controlled cloth to be phased out from the mill sector to the handloom sector in the shortest period possible;
(iii) The National Textile Corporation to play a major role in meeting the clothing requirements of the weaker sections;
(iv) Growth of handloom and khadi sectors to their fullest extent to be ensured by containing the weaving capacity in the organised mill and powerloom sectors;
(v) The industry to be based on cotton, to the extent it was available. The use of synthetic fibres to be regulated so as not to adversely affect the interests of cotton growers;
(vi) Adequate availability of woollens at reasonable price for all sections of population to be ensured by developing the woollen sector; and
(vii) Emphasis to be placed on the need for quick yielding modernisation programmes with necessary stress on modernisation for exports.

TEXTILE POLICY, 1981

The policy framework on the textile industry pronounced by the Government in August 1978, was found to have suffered from several drawbacks and did not provide the requisite impetus for a steady and harmonious growth of this industry. The policy did not take a long-term view of the needs of the industry as also the changing pattern of demand in domestic as well as international market. Thus the full potential of various sectors of the textile industry remained to be realised. This objective could only be achieved by providing a comprehensive and integrated policy framework within which these sectors could grow in harmony and lead to higher output, productivity, income and employment and availability of raw materials and fabrics keeping in view the future needs and trends in the country and abroad.

In view of the above the Government had given considerable thought and evolved an integrated textile policy framework. On March 9,1981 a statement on "Textile Policy"[2] was laid on the Tables of Lok Sabha/Rajya Sabha by the then Minister of Commerce, Steel and Mines. The main objectives which the Textile Policy sought to achieve were as follows:

(i) Increasing production of cloth of acceptable quality to meet the clothing requirements of a growing population, at reasonable prices;

[2] For text of the Policy Statement please see Appendix 13.2.

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(ii) Promoting of harmonious and balanced growth of all sectors of the textile industry in consonance with national priorities and the targets of the Five-Year Plan;

(iii) Maximum possible growth of handlooms in the decentralised sector and faster growth of Khadi, hosiery and the natural silk sectors to generate more employment and raise the standards of living of small weavers and others employed in these sectors;

(iv) Strengthening and streamlining of infrastructure for distribution of cloth to weaker sections of the population;

(v) While maintaining the dominant position of cotton as the main fibre, encouraging the use of man-made fibres and yarn by different sectors of the industry keeping in view domestic and international consumption trends and for this purpose increasing the availability of natural and man-made fibres and yarn; and

(vi) Generating surplus to produce fabrics of acceptable standards for the world market at competitive prices.

NEW TEXTILE POLICY, 1985

In the past few years, the development of the textile industry had been guided by the policy framework announced in March 1981. While considerable progress had since been achieved in several areas under this policy framework, the objectives of the policy outlined in the textile policy statement had not been fully achieved. Thus, the per capita availability for, and the per capita consumption of cloth of, our growing population still remained at a very low level. There had been evidence of an increasing incidence of sickness in the organised mill sector, reflected in a large number of close units. There was a great unsatisfied demand for durable synthetic and blended fabrics at cheaper prices which was not being met by indigenous production. The full export potential of textile products remained to be realised.

The textile industry had experienced fluctuations in its fortunes. However, an analysis of the current difficulties faced by the industry revealed that the present crisis of the industry was neither cyclical nor temporary, but suggested deeper structural weaknesses. Therefore, the Government had reviewed the existing textile policy and, after careful consideration, formulated the new policy for the restructuring of the textile industry with a longer term perspective.

On June 6,1985, the Minister of Textiles, Shri Chandra Shekhar Singh, announcing the Government's "New Textile Policy"[1] said that the existing textile policy set out a number of objectives. While each of these objectives was important, the multiplicity of objectives had inhibited the achievements of the main task of the textile industry, that was to increase the production of cloth of

[1] For text of the Policy Statement please see Appendix 13.3.

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acceptable quality at reasonable prices to meet the clothing requirements of a growing population. Henceforth, the approach to the textile industry would be guided by this main objective. In the pursuit of the main objective, the employment and export potential of the industry shall be kept in view. The availability of cloth at affordable prices for the poorer sections of the population shall be augmented, he added.

The salient features of the new policy announced by the Minister are as given below:

Restructuring of the Textile Industry

The textile industry has, so far, been viewed in a compartmentalised manner, either in terms of various sectors namely, organised mills, powerlooms and handlooms, or in terms of fibre use namely, cotton textiles, woollen textiles, man-made textiles and silk textiles. Classification on such grounds had led to structural rigidities in the textile industry. To achieve the main objective of the textile policy, it is necessary to eliminate the existing structural rigidities and to evolve a more integrated view of the textile industry. The proposed restructuring of the textile industry would have the following three main dimensions:

(i) The industry shall be viewed in terms of the stages of its manufacturing process, namely, spinning, weaving and processing;
(ii) The industry shall be provided with fuller flexibility in the use of various fibres; and
(iii) The industry shall be subject to more pragmatic policies regarding creation or contraction of capacities by units in order to increase competition and promote healthy growth in the industry.

Organised Mill Sector and Powerlooms to be Treated at Par

The composite mills and the powerlooms have their own respective strengths and weaknesses. For the purpose of policy, powerlooms in the organised mill sector and in the unorganised powerloom sector shall, as far as possible, be treated at par and allowed to compete on the basis of their inherent strengths and capabilities.

Optimum Utilisation of Spinning Capacity

In the spinning sector, all steps will be taken to ensure optimum utilisation of the spinning capacity. The availability of raw materials for the spinning sector would be augmented. The infrastructure for the distribution of yarn would be strengthened. At the same time, necessary measures to encourage and increase spinning in the khadi sector would be taken in view of its large employment potential.

Preservation of the Unique Role of Handloom Sector

In order to preserve the unique role of handlooms and enable them to realise their full potential as also to ensure higher earnings for the handloom weavers,

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the following main steps shall be taken: (i) The development of handlooms through cooperatives and Central/State level corporations shall be intensified; (ii) Greater emphasis will be placed on the modernisation of looms and provision of technological and other inputs for improving productivity of handlooms and the quality and finish of handloom products; (iii) Special efforts would be made to ensure adequate availability of yarn and other raw materials to the handloom sector. The infrastructure for procurement and supply of such inputs at reasonable prices to the handloom weavers shall be strengthened; (iv) The production of mixed and blended fabrics on handlooms shall be encouraged with a view to improving the wages and earnings of the weavers; (v) Protection to handlooms will be provided by reserving articles for their exclusive production in the handlooms sector; (vi) Steps would be taken to remove, as far as possible, the cost handicap of the handlooms *vis-a-vis* the powerlooms by suitable fiscal measures; (vii) Steps would be taken to upgrade the technical, managerial and administrative skills of personnel employed in the handloom sector; (viii) A census of handlooms shall be undertaken. The machinery for implementation, supervision and evaluation of handloom programmes shall be strengthened; and (ix) A contributory thrift-fund scheme to provide assistance to the handloom weavers during times of need shall be created.

Fuller Fibre Flexibility and Reduction of Fiscal Levies

Full fibre flexibility as between cotton and man-made fibres/yarn would be provided to the textile industry. Fiscal levies on man-made fibres/yarn and on the intermediates used as inputs for the production of such fibres/yarn shall be progressively reduced in such a manner as to facilitate absorption of increased domestic production so that the benefit flows to the consumer in the form of lower prices of synthetic and blended fabrics, and the export window shall be kept open for man-made fibres/yarn.

Pre-eminent Role of Cotton and Remunerative Prices for its Growers

The pre-eminent role of cotton as the main raw material of textile industry would be maintained. Cotton growers shall always be assured off-take of their produce at remunerative prices. Cotton needed by the textile industry would be made available in adequate quantity and at reasonable prices.

Capacity Expansion by Existing Units to be Permitted

Capacity expansion by existing units and capacity creation by new units would be permitted subject to the general industrial policies. As a corollary, units would also be allowed to contract capacities, including closure of a unit or part thereof, wherever necessary and justified provided the interests of the workers are fully protected.

Compulsory Registration of All Powerlooms

A significant proportion of the powerlooms remained unregistered and unauthorised. Henceforth, there shall be compulsory registration of all

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powerlooms. Effective measures would be taken to see that the powerlooms do not encroach upon articles reserved for exclusive production by the handlooms.

Production of Controlled Cloth Entirely by Handlooms

The responsibility for the entire production of controlled cloth shall be transferred to the handloom sector by the end of the Seventh Plan. The public distribution for controlled cloth would be strengthened and streamlined.

Encouragement to Khadi Programme

All encouragement would be given to the expansion of the khadi programme in view of its large employment and income generating potential in the rural areas, specially among women. Steps would be taken to improve the production process, upgrade the skills of workers, raise productivity, diversify the product range and strengthen the marketing arrangements under the khadi programme.

Closing of Economically Unviable Mills and Changing of Management

Where a sick unit has no expectation of becoming viable in a reasonable period of time, there may be no alternative but to allow the unit to close provided the interests of the workers are protected. Takeover by the government or nationalisation of such sick units does not provide solution to the problems of sickness and the government would not, as a rule intervene in such cases.

In some areas, the units, although potentially viable may have been led to sickness by inept management or mismanagement. In such cases, the existing management may have to be changed. Change of management will be essential in cases where restructuring of capital and liabilities is contemplated.

Creation of a Rehabilitation Fund for Workers

A rehabilitation fund for workers of the textile industry would be created to provide relief to such workers for a limited period who might be displaced by permanent closure of units. Such a fund shall, *inter alia*, be financed by a suitable cess on the textile industry.

Modernisation and Technology Upgradation

Modernisation, in the spinning, weaving and processing sectors shall be undertaken on the basis of carefully identified needs of each unit, as to installation of balancing equipment, renovation of existing machinery, replacement and technology upgradation.

For the purpose of modernisation, adequate funds would continue to be provided under the soft loan scheme of the IDBI. In order to enable the industry to generate internal resources for modernisation, a textile modernisation fund shall be created.

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Liberal Imports of Textile Machinery

The indigenous textile machinery manufacturing industry shall be given encouragement to reduce costs, upgrade technology and improve the quality of machinery. However, liberal import of such textile machinery, which is not manufactured indigenously, shall be permitted at or near the international prices.

Elimination of Controls and Regulations

The textile industry has been subjected to a number of controls and regulations, many of which have become irrelevant or unnecessary with the passage of time. Such controls would be reviewed for elimination, phasing out or modification, as the case may be.

It is hoped that the policy framework outlined above would facilitate the necessary restructuring of the textile industry in India, would equip it to make an increasingly significant contribution to output, employment and exports and would satisfy the clothing needs of all sections of the population.

DISCUSSION IN PARLIAMENT ON TEXTILE POLICY, 1985

Lok Sabha

The new textile policy announced by the Government on June 6, 1985, was laid on the Table of Lok Sabha on July 26, 1985. It was discussed in the House on July 30, and August 1 and 8, 1985.[4] A number of members expressed their views while participating in the discussion on the new policy.

Replying to the discussion, the then Minister of State in the Ministry of Supply and Textiles, Shri Chandra Shekhar Singh, said that consumption of cloth in the country had remained almost at a stagnant level. There were clear imbalances between the three recognised segments of the textile economy—the handloom, the powerloom and the composite mills. While handloom and composite mills had failed to reach the target of production set for them in the Sixth Five-Year Plan, the powerlooms had overrun their targets and they had thereby affected not only the composite mills but also the handloom sector. Moreover, there had been a growing sickness in the textile industry. The exports of textiles were at a very low level and had been declining. This was the situation which confronted the country and for which a new textile policy was imperative, he added.

The new textile policy, the Minister said, envisaged modernisation, not only of the composite mills but modernisation of the handloom sector also. The Government had provided in the new textile policy for the introduction of improved looms which would greatly enhance the earning capacity of an

[4] *Lok Sabha Debates*, July 30, 1985; Cols. 227–336, August 1, 1985; Cols. 238–251, August 8, 1985; Cols. 311–378.

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ordinary handloom weaver. It had introduced multi-fibre flexibility. This flexibility had been allowed for all the three segments of the textile sector. The Government's effort had been to induce competition particularly in the composite mill segment so as to make cloth production cost effective and within the reach of the poorer sections of society. The handloom had been given a more prominent role to play in the new textile policy not only from the point of view of upgradation and technology, but also because adequate measures had been taken to protect it against the inroads of powerloom. The Government had fully realised the fact that more than seven million weavers were getting employment in this segment. It had taken care of the problems of handloom weavers right from the stage of supply of yarn to the stage of marketing of their products. It had constituted a Committee which had representatives of handloom weavers on it. The Government would give fullest consideration to the recommendations of the Committee, the Minister added.

The Minister informed the House that the Government had gone into the analysis of the conversion cost of handlooms and the conversion cost of mills and the cloth produced by handlooms was cheaper than the cloth produced by mills. This went to the credit of handloom weavers and the decision to pass on the production to handlooms would give not only employment to handloom weavers but would also make cheaper cloth available to the consumers. The simple decision to pass on the production of Janata cloth in its entirety to the handloom sector was going to create nearly a million jobs for the handloom weavers in the country.

Clarifying the points raised by the members regarding powerloom sector, Shri Chandra Shekhar Singh said that the Government was not in any way prejudiced against it. This sector was growing at the cost of the labour employed in the powerlooms. They were not being given even the minimum wages. A large number of powerlooms were not paying any taxes at all to the State Governments or to the Government of India. Now they would be allowed to grow only if they had the inherent strength to grow. Therefore, a compulsory registration system was being introduced. Once the powerlooms got registered, they would be accountable for everything.

The composite mill sector, Shri Singh said, would have two advantages. It would not have to pay sales tax on cotton yarn and it would not have to pay for the transport of yarn because it was produced at the same place. The powerlooms also would have the advantages of lower level of wages, and their overhead costs would also be lower. Even with the implementation of the new textile policy, the edge would always be in favour of the powerlooms. So the powerlooms had nothing to be very unhappy about. The Government wanted to create a situation where the labour employed in the powerlooms should get a fair deal and the powerlooms should also pay their dues to the state exchequer. The situation would certainly change qualitatively for them and the decision had been taken consciously in the interest, particularly, of the handlooms whom the Government wanted to protect against the inroads of the powerlooms.

The Minister informed the House that in the composite mill sector, 66 to 70

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or 72 mills were always on the close list. More than hundred mills in the country had been identified in the category of getting sick by the IDBI. In the present situation the initiative had been left to the mill owners. If they wanted to prepare a rehabilitation package and go to the financial institutions for loans, they could do it. But the Government so far had not acknowledged that they had a role to play. It was for the first time that the Government had taken cognizance of the fact that such situation of sickness was being created, it had to be prevented and necessary action had to be taken. The Government had taken upon itself the responsibility to take initiative in this sphere. There were cases of inept management and the Government would not hesitate to take steps to change the management in such cases, so that any management should not be allowed to create a situation where closure did take place and the labour was thrown out of employment and the production was hampered. The Government had made a very important announcement that if in a case it was found that a particular industrialist had deliberately created sickness, developed a vested interest in the sickness, he would be denied the facility to get help from the financial institutions for all the undertakings he was running and thereby he would be declared almost a financial leper which no financial institution was going to touch.

As regards the NTC, the Minister said that there were 3 or 4 mills where the total loss was higher than the total wage bill. But the Government had not opted for closure of the mills even in such a situation. That was what the Government's response has been to the woes and miseries and problems of the ordinary workers. The Government had taken two important decisions, firstly that the dues, the terminal benefits to which a worker was entitled would have a very high priority and he would be fully paid. Secondly, they had introduced the concept of rehabilitation of the workers. The Government had taken upon themselves the responsibility to rehabilitate the workers and see that some payment was made to them during the intervening period. So that was what the Government had tried to do in the composite mill sector. Employment in the composite mill sector alone was not going to decline during the Seventh Plan period.

Referring to cotton prices, the Minister said that cotton growers would always be assured of off-take of their produce at remunerative prices. The Cotton Corporation of India would have to play a new role as it would be responsible not only for ensuring floor price to cotton growers but also remunerative prices to them.

Concluding, the Minister said that question of relief which the Government proposed to give in the matter of excise duties and import duties would be decided in consultation with the Finance Ministry and whatever relief was given in the matter of excise duties or import duties, it would be passed on to the consumers. The Government was evolving a mechanism to see that this gap did not remain. The Government had already set up monitoring cells for the implementation of different items enumerated in the new Textile Policy, he added.[5]

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[5] *Lok Sabha Debates*, August 1, 1985, cc. 356–378.

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Rajya Sabha

The new textile policy was also laid on the Table of Rajya Sabha on July 30, 1985, which was taken up for discussion in the House on August 13 and 14, 1985.[6]

In his reply to the discussion, the then Minister of State in the Ministry of Supply and Textiles, Shri Chandra Shekhar Singh, expressing his gratitude to the members for the wide support they had extended to the new textile policy, informed the House that in order to implement the new policy several notifications and orders removing controls in the textile industry which had become irrelevant in the present context had been issued, full flexibility had been permitted, the freeze on new capacities had been lifted and sanctions had been issued for the Contributory Thrift Fund, Worksheds and Housing Scheme for the benefit of the handloom weavers. The Scheme for the construction of worksheds and houses for the handloom weavers had been announced by the Government for the first time under this policy, he added.

The Minister further informed that the new procedure regarding endorsement of capacities of the processing houses had also been laid down in accordance with the new policy. The target of production for controlled and the Janata cloth had been raised from 650 million metres to 700 million metres and the allocation of additional production had been made to the handlooms during the current year. The allocation of this additional production of cloth to various States had also been finalised. The revised guidelines had been issued for streamlining the implementation of, and distribution under, the Janata Cloth Scheme. The export of cotton yarn of counts between 0 and 40 had been allowed up to 6 million kg.

The Government was trying to evolve an effective mechanism to see that the relief that they were extending to the increased availability of man-made fibres was passed on to the consumers. It was for the first time that the interest of the consumers had been fully taken care of. The consumer was the centre-piece of the entire policy. The Government would go even beyond the normal parameters of Government function to ensure that the consumer was ultimately benefitted.

The Government was committed to ensure minimum support price to the cotton growers. But in the new policy the Government had ensured to give remunerative prices to the cotton growers. It would give further protection to them. Remunerative prices would be much higher than the minimum support price. The Cotton Corporation of India was being assigned an extended role. The Corporation would try to ensure remunerative prices to the cotton growers and also go in for price stabilisation operations. During the current year, the Government had exported 3 lakh bales of long and extra long variety of cotton and it was importing nearly one lakh bales of medium and short staple variety. There was a varietal imbalance and the export and import was guided by

[6] *Rajya Sabha Debates*, August 13, 1985, cc. 195–272 and 300–312, and August 14, 1985, cc. 166–182.

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considerations of domestic requirements and the price trends in the markets. Further export of long and extra long variety could be undertaken.

As regards the question of employment, particularly in the organised sector, Shri Singh said that the policy had clearly stated that even contraction of capacities would be permitted; however, the Government was fully aware of the social cost of such a step and it could not be taken in a casual manner. Every effort would be made to nurse back the sick units to health. In regard to sickness in the textile industry the Minister said that previously the mills had been closed and it had come to the Government's notice only when they had actually been closed. The Government had taken upon itself the responsibility of locating the causes of sickness in an industry or in a particular undertaking. There was a possibility of preventing sickness in the industry. The cases of nearly 70 closed mills revealed that a good number of them were placed in a situation where these could be brought back to life and the workers could get employment and they could start functioning if a proper dose of investment was made available and necessary restructuring was effected.

If there was anything possible to prevent closures and sickness, the Minister assured the House that the Government would take appropriate action at the right time so that such a situation might not arise. But it was also true that in a few cases, there would be a situation where a partial or a total closure might have to be undertaken. The Government had taken a vital decision to give high priority to the dues of labour, and labour would be paid all benefits due to them in time without any delay. But the policy had introduced a new concept, and a new responsibility had been taken by the Government to rehabilitate the workers and help them during the intervening period of rehabilitation. The concept of rehabilitation fund had appeared for the first time, and it might become a model for other industries as well. The Government would support the workers financially for two or three years and would help them in finding something to stand upon and help themselves or get jobs.

A particular mill-owner would not be given the liberty to take a final decision. A Standing Committee was being constituted which would be given the responsibility of identifying the sick units or the viable or non-viable units. The Committee would also have labour representatives on it. The Government was considering a comprehensive legislation to tackle the sick units and an expert body with labour representatives on it would finally take a decision. No open general licences were being given to the mill-owners.

Referring to the question of performance of NTC raised by a member, the Minister said that the NTC had started the working of the mills which were really a monument of the failure of the private sector and they were doing much better. He congratulated the workers and the managers of the NTC for it. Some 44 such mills had been able to wipe out their losses completely and if a proper and adequate dose of investment was made within the next few years, the NTC would be earning something for the State Exchequer and for the people of the country.

Responding to the points raised by the members, the Minister said that the

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Government was fully aware of pitiable situation of weavers and a lot had to be done to improve their economic situation. The Government believed that the resurrection and regeneration of handloom was a very important step towards the very regeneration of the entire economy and therefore, the Government wanted to help the nearly 70 million weavers of the country. Till now handlooms and powerlooms were clubbed together and the composite mills were placed in a separate category. The powerlooms were able to misuse the concession given to handlooms and function under the cover of handlooms. In the formulation of the policy, powerlooms and organised mills had been put together because they were both power operated sectors and parity had been sought to be introduced. The Government did not want to finish the powerlooms and felt that they should be positioned properly. The powerlooms would still have an advantage *vis-a-vis* the composite mills. But it was a very important decision to place them together. The Government had put the handlooms in an entirely separate category, and was trying to make sure that the concessions given to handlooms were not misused and handlooms were given full protection. For the first time the Government had initiated purely welfare measures for the weavers, a provident fund scheme for them and a scheme for construction of their workplaces and houses the Minister added.

Concluding, Shri Singh said that the Government was trying to restructure the entire textile economy. Consumption of cloth was stagnating at a low level and the consumers also wanted blended cloth, better cloth, more wearworthy cloth for themselves. There was also a huge unrealised export potential for the textile products and the Government was trying to gear up the entire textile economy to that level. The new textile policy was a sincere effort in the direction of raising the level of the entire textile economy and bring about its harmonious growth, he added.[7]

REVIEW OF FISCAL LEVIES ON TEXTILES

In pursuance of the new textile policy the Government reviewed the fiscal levies on textiles and announced on August 28, 1985, in both Houses of Parliament a package of customs and excise duty reliefs on a variety of man-made fibres resulting in an estimated revenue loss of about Rs. 131 crore in a full year and about Rs. 77 crore for the rest of the year 1985–86. The fiscal package had been formulated with the objective of increasing the availability of reasonably priced fabrics to the consumers. The Government proposed to carry out a review after some time whether that objective had been sub-served on which would depend the continuation of this scheme.

Announcing the concessions, the then Minister of Finance, Commerce and Supply, Shri Vishwanath Pratap Singh stated that the new textile policy aimed *inter alia*, at increasing the production of cloth of acceptable quality at reasonable

[7] Rajya Sabha Debates, August 14, 1985, cc. 166–182.

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prices. While cotton would continue to enjoy the role of predominant fibre, it had also been necessary to reduce fiscal levies on man-made fibres/yarn in such a manner that benefit flowed to the consumer in the form of lower prices of synthetics and blended fabrics. The fiscal package represented the first instalment of the reforms proposed to be carried out in the indirect tax structure and covered the steps which could be taken at this stage without waiting for the next Budget.

The Minister further said that the Government had been consistently encouraging the production of blended fabrics with certain proportion of polyester fibre through progressive reduction of duties on blended yarns and fabrics following the Textile Policy Statement of 1981. Having regard to the broad objective of making cloth of acceptable quality available at low prices, as a measure of further relief in this area, the Minister proposed to reduce excise duty on polyester fibre from Rs. 45 to Rs. 25 per kg. He also proposed to reduce the excise duty on polyester-cotton blended yarns containing more than 40 per cent but less than 70 per cent by weight of polyester fibre from Rs. 5 to Rs. 2 per kg. On similar blends of polyester viscose blended yarn, the duty was proposed to be reduced from Rs. 10 to Rs. 4 per kg. As regards polyester cotton blended fabrics a concessional rate of 2 per cent was already available. However, concessional rates were not available for polyester viscose blended fabrics. The Minister proposed to reduce the excise duty on polyester viscose blended fabrics with certain polyester content to 5 per cent *ad-valorem* from existing rates which varied upto a maximum of 13.2 per cent. In order to ensure that the benefits of reduction of duty went mainly to cheaper fabrics, the Minister proposed to increase the incidence of duty on cotton and man-made fabrics of assessable value exceeding Rs. 25 per square metre containing polyester fibre. The increase was being effected mainly through increase in the component of additional duty in lieu of sales tax so that interests of the States were protected. The reduction in the duties for low priced fabrics were expected to bring down retail prices by about 10 to 15 per cent, the Minister added.

Shri Singh said that a scheme for larger production of low priced blended fabrics was also being formulated for which polyester fibre would be made available without payment of excise duty or additional (countervailing) duty of customs which at present was Rs. 45 per kg, subject to production and supply of such low priced fabrics as per programme approved by the Department of Textiles. Such a programme had been worked out by the Department of Textiles for the Units of the NTC.

Referring to acrylic fibre, Shri Singh said that it had become quite popular and had been supplementing the production of raw wool. As a measure of relief to this industry, he proposed to reduce the excise duty on acrylic fibre from Rs. 17.50 to Rs. 10.00 per kg.

Replying to the points raised by the members in Rajya Sabha, the Finance Minister said on August 28, that as regards the question of the effect of these excise duty reductions on cotton, the availability of man-made fibre made the country a little independent and the possibility of exports was there. So cotton

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did not get affected. Also yarn exports would be possible if a certain amount of man-made fibre was available in the country. The dependency would be reduced. It would supplement the medium-length fibre. Cotton would be the principal fibre and this was going to continue. It was for the middle class and the lower-middle class which used the blended fabric that the relief was being given.

The Minister further said that in the countries like Japan and South Korea, there were huge economies of scale in production of man-made fibres, yarn, etc. Indian units were smaller. So the cost went up high. If India was to be competitive, the technology would have to be developed and the scale would have to be developed. The Government was conscious of it, he added.

Making a statement in both the Houses of Parliament on August 28, 1985, after the announcement of the duty relief measures by the Finance Minister, the then Minister of State in the Ministry of Supply and Textiles, Shri Chandra Shekhar Singh, *inter alia* said that the Government had placed greater emphasis on bringing down the cost of blends desired widely by the common man. Thus the present demand for blended shirting material of low price range was 134 million metres per annum with a substantial growth potential. In order to achieve that objective, the Government had great pleasure in announcing the launching of a new programme, viz., "Approved Programme for Production and supply of Low Priced Blends". Under this programme, the NTC along with such other organisations, as might be admitted to participate in this programme from time to time, would arrange production and sale of blends at prices fully reflecting the reduction of duties. The NTC had immediate plans to increase the production of blended shirting and trousers from the present level of 24 million metres to 80 million metres. Out of this 8 million metres would constitute controlled cloth under the existing scheme, 8 million metres to DGS&D and Public Sector Undertakings and balance 64 million metres to the open market. The NTC would make all efforts, under the approved programme, to bring down the retail price range around Rs. 20.00 per sq. metre for shirting and maintain that of heavier cloth around Rs. 40.00 sq. metre for trousers. The programme was basically designed to impart a price discipline over the market and ensure that the duty relief was actually passed on to the consumers in full, the Minister added.

The Minister stated that the textile industry had a great responsibility cast on it when Government was making a revenue sacrifice. The Government hoped that the industry would respond suitably by increasing production of low price fabrics and would pass on the benefit to the consumers. The entire market of polyester fabric was bound to come down. The Government would watch the situation and would take every measure to see that the benefit was passed on to the consumer and cheaper polyester fabrics were available to the lower middle-class people of the country, he added.[8]

[8] L. S. Debates, August 28, 1985, cc. 102–104, and R. S. Debates, August 28, 1985, cc. 107–121.

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PRESS COMMENTS ON THE TEXTILE POLICY

The new textile policy, described as pragmatic and growth oriented in various quarters, by and large was widely welcomed by the Press. Excerpts of the comments of some of the leading newspapers are given below:

The Times of India, calling the new textile policy as 'A new life for textiles', in its editorial of June 7, 1985, wrote:

> No single policy change by the government in the past three decades has been as sweeping as the textile policy . . . And no policy change could have had as great an impact on the nation's economy as the present one will have . . . The new policy has done away with the three sector system. Henceforth there will be only two sectors—the handloom and the power-driven. While the scope for the former will actually be enlarged, the entire power-driven sector will be treated on an equal footing. In particular all restrictions on the use of synthetic and woollen fibres and on production or loom capacity are to be removed on both the spinning and the weaving stages of production. There can be no doubt that all this will administer a galvanic shock to the textile industry. Not only will there be a major readjustment between the mills and the powerlooms with the former concentrating more on fine, super-fine and blended cloth, but in the mills sector itself, the new policy rings the death knell for the old and the inefficient.

In its editorial the *Hindustan Times* of June 8, 1985 said:

> The textile industry has been subjected to a number of controls and regulations, many of which have become irrelevant or unnecessary with the passage of time. The new policy seeks to rectify these flaws by introducing production flexibility commensurate with the pattern of consumer demand and removing curbs on expansion and new capacity in the mill sector as well as on powerlooms . . . The most important change in the Government's outlook is towards man-made fibres which in the past were subjected to unusually stiff levies. Now by providing full fibres flexibility between cotton and man-made yarns and reducing the duties on the latter, the Government hopes the mills will utilise the opportunity to modernise their plants and thus become more viable and competitive. It also expects them to open an export window. It is in the matter of tackling growing sickness in the textile mills, particularly in the organised sector, that the new policy appears to be ambiguous.

Describing the new textile policy as the most comprehensive approach the Government had ever applied the problems of the textile industry, *The Hindu* of June 8, 1985, wrote:

> The full impact of the new policy will become evident when the controls are lifted or modified, the duties now being levied on synthetic fibres and yarn are lowered and the modernisation plans are briskly implemented. The earlier freezing of the weaving capacity and the cumbersome procedure for increasing the spinning capacity stifled the growth of textile units in the organised sector . . . These are now proposed to be eliminated or reconciled by taking a pragmatic and liberal view of the outstanding issues. The sick mills too are proposed to be revived wherever are considered viable over a period or closed down where they cannot be resuscitated.
>
> The textile producers have some new challenges to meet and can no longer complain about irksome government policies or unfair competition among the

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various sectors of the industry. . . . The public is entitled to call for sincere attempts all round to improve the quality and range of the fabrics that come to the market so that these can be made available at lower prices and the foreign exchange earnings from the exports of textiles and garments will be a more reliable component of the country's foreign trade than it is now.

In its editorial, The *Tribune* of June 8, 1985 commented:

> Surprising even the most optimistic observer, the Union Government has virtually freed the textile industry of all curbs in an attempt to achieve a threefold aim: greater production reasonable quality and affordable prices. It is now up to the private sector to seize the opportunity with both hands and bring about horizontal as well as vertical expansion.
>
> There is one point on which the new policy is surprisingly vague. It promises to safeguard the interests of the cotton grower by expanding the functioning of the Cotton Corporation of India. This is unconvincing. With the mills given a free rein to use man-made fibres which are enormously popular, the demand for cotton should gradually shrink. If experience is any guide, the mills will skillfully exploit this fear to push down the prices of cotton.

Terming the new Textile Policy a 'life-giving package,' *The Economic Times* of June 8, 1985 wrote:

> It is a matter of gratification that New Delhi has come to grips with the realities in the textile industry at last. Populist fancies and warped thinking that passed for policy had imposed a lot of unwarranted restrictions on the textile industry. Not to say anything of the multiplicity of levies that priced out Indian textiles from the world market. While the world textile industry made phenomenal progress . . . The Indian textile industry languished on the verge of total collapse. . . . All in all, the new policy looks at India's textile industry as a whole, instead of compartmentalising it. Outdated regulations which had put the industry in a strait-jacket are being scrapped. The industry has received a shot in the arm. Much depends upon the spirit in which the industry implements the guidelines.

According to the *Financial Express* of June 8, 1985 the new Textile Policy raised the hope that:

> The ailing textile industry will once again secure a pre-eminent place in the national economy. . . . By promising fuller flexibility in the use of fibres, the Government has taken a bold step towards making the industry truly a multi-fibre one. The industry the world over has adopted a multi-fibre and multi-process approach because of change in consumer preference. As the Government had decided to adopt this approach, there is no doubt that the industry will be in a better position than now to meet the growing demand for fabrics made out of non-cotton fibres. This will also help the industry promote exports. . . . It is encouraging to note that the Government has appreciated the need to provide blends and synthetics at prices which even the poorer sections of the population can afford.

In its editorial, the *Business Standard* of June 8, 1985 said:

> The new textile policy apparently sees the scenario of growth it has scripted as a pleasant sequence of events: mill modernisation, a chastened powerloom sector, quality textiles, growth in textile demand and a fair share for all the three sectors of

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the industry and so on. The script may not really run so, judged by experience. Even a cursory examination of the textile demand scene over the years suggests that demand for textiles is more income-sensitive than price sensitive. Has the ministry for textile a plan to put a larger real income in textile consumer's pocket? It thus looks like a long haul for the textile industry, even with a newly steamed-up policy thrust for growth.

Describing the new policy as a 'Hope for Textiles' the *Indian Express* of June 10, 1985, wrote in its editorial:

> The textile policy . . . is intended to remove some of the worst features of the existing situation but much will depend on how the essential elements of the new thrust evident in the latest formulation are interpreted and implemented. The policy statement frankly admits the existence of structural rigidities. A multiplicity of (conflicting) objectives has also inhibited performance. The new policy seeks to overcome these problems. . . . In all sectors, khadi, handloom, powerloom and mill, the emphasis is on modernisation, technological upgradation, raising productivity with the accent on quality, and improved marketing and management. This is eminently sensible. There is a fallacy that the khadi and handloom sector must remain traditional and therefore necessarily high-cost and indifferent to quality. Marketing and management problems have been kept at bay by subsidies and rebates which have created unhealthy vested interests. Likewise powerlooms which under-cut both the mill as well as the cottage sector are to be disciplined and encouraged to improve productivity. . . .

In its editorial on the new policy, the *Statesman* of June 13, 1985, commented:

> The most noteworthy features of the new five-year textile policy is its encouragement of competition between the three segments of the industry: the mills, powerlooms and handlooms. Increased competition should result in more efficient production, lower costs and eventually lower prices. Since this process is expected to apply to all types of manufacture—cotton, synthetic and blended items—the consumer should also have a wider choice of reasonably priced cloth. It is reassuring that the industry's initial reaction has been one of relief. Much, however, will depend on implementation of the policy, which cannot be simple in view of its comprehensive scope.

Complimenting the then Finance Minister, Shri V. P. Singh, on fulfilling his promise to reduce the excise duty on man-made fibres and yarn, the *Hindustan Times* of August 30, 1985, said:

> It is hoped that the relief will be passed on by fibre and yarn producers to consumers. Otherwise, the major fiscal reform will turn out to be a cruel joke not only on consumers but also on the Government. The loss of revenue to the Government on account of the steep cut in the levy: is estimated to be Rs. 131 crore in a full year and Rs. 77 crore for the rest of the year 1985–86. The Government has rightly warned the manufacturers that it will not hesitate to reconsider the concessions if these are not passed on to the consumer.

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APPENDIX 13.1

Statement on Textile Policy Laid on the Table of Lok Sabha by the then Minister of Industry on August 7, 1978

The textile industry is the oldest and single most important industry in India both in terms of employment, and for meeting one of the essential consumption needs of the people. Unfortunately, over the years, the performance of this industry has not been satisfactory. In the organised sector, productivity has fallen in a large number of units. The incidence of sickness has been growing, and the progress of modernising obsolete equipment has been tardy. The cost of textiles has been rising steadily, while the per capita consumption of cloth has been falling.

2. In the less organised and decentralised sector of handlooms, khadi and sericulture difficulties regarding the supply of yarn, suitable marketing arrangements and similar factors have resulted in a less than adequate growth rate. Difficulties regarding availability of yarn at reasonable prices, marketing problems and competition from the powerlooms have been some of the reasons for this. Production of woollen fabrics has not kept up with the demand, and prices have prevailed at a very high level. The sericulture industry has been stagnating, despite its enormous potential for providing gainful employment.

3. The absence of clear-cut and unambiguous policies relating to the various facets of this diverse industry, and the failure to set definite time bound objectives, have been largely responsible for this unhappy situation. Thus:

(i) The roles and tasks to be performed by the organised sector, and the decentralised sector, have not been clearly defined;

(ii) Large amounts of public resources have been spent on subsidising the textile industry, but the subsidies have largely favoured the organised sector, despite the greater need to help the development of the handloom and unorganised sector. In addition, the competition from powerlooms was not regulated;

(iii) There has been a lack of consistent policy, and the absence of a long-term perspective, relating to the use of cotton and synthetic fibres. This has resulted in advantage not being derived from the use of low priced synthetic fibres;

(iv) The wide fluctuations in the price of cotton, the principal raw material for this industry, has had a serious detrimental effect on the textile industry, and caused uncertainties to the growers. Organisational and policy frameworks for effectively dealing with this problem have not been devised;

(v) The public sector has had to assume a large role in textile production, without any clear cut policy aims and objectives.

4. The achievement of Government's economic and industrial policy requires that this situation of uncertainty and inconsistent policies should end, and

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conditions should be created for steady and stable growth for the future. The main objectives which are sought to be achieved by the new textile policy are:

(i) Production and availability of adequate supplies of cloth, of acceptable quality and at low prices, for the masses;
(ii) Improved arrangements for the distribution of this cloth to the weaker sections of the population;
(iii) Rapid development of the decentralised sector, including handlooms, khadi and sericulture and maximisation of employment thereby;
(iv) Harmonious balance between the use of cotton and synthetic fibres, ensuring that the incomes, and employment of cotton growers is maximised, and optimum use is made of the potential for the production of synthetic fibres from the high aromatic gas, and naptha, feed stock available in the country.

5. The controlled cloth scheme has not proved successful in achieving the objective of providing cheap cloth to the weaker sections of the population. Although the cloth produced under this scheme is being heavily subsidised, the distribution system has not been able to ensure that the benefits reached the weaker sections, particularly in the rural areas. At the same time, the availability of highly subsidised mill-made cloth has provided unfair competition to handlooms, and thereby retarded growth in that sector. The system of determining quotas for the production of controlled cloth, on the basis of loom-shifts, has thrown a heavier burden on the weaker mills, and on the lower value cloth. The losses suffered by the weaker mills on account of the production of controlled cloth has been one of the important contributory causes for their sickness. Exemptions from the obligation to produce controlled cloth has had to be given to a large number of textile mills because of sickness, and consequently the availability of controlled cloth has been falling, and is totally inadequate to meet the requirements of the weaker sections of the population.

6. Government consider it necessary that the supply of cheap cloth for the weaker sections, and the rapid development of the handlooms sector, should be simultaneously accomplished. It is, therefore, intended that the handloom sector should, to the maximum extent possible, and in the shortest period of time, meet the requirements of cloth for the weaker sections of the population. The sale price of such handloom cloth would be subsidised to the extent decided upon from time to time, so that the social obligation of providing cheap cloth to the weaker sections can be adequately fulfilled. The manufacture of controlled cloth in the organised sector would be phased out over a period of time, consistent with the growth of production of the required varieties of cloth in the handloom sector. It is proposed to discontinue the present pattern of imposing obligation to produce controlled cloth with effect from October 1, 1978. The financial burden now would be borne by the entire textile industry in a manner suitably devised to ensure that the burden is distributed equitably. This form of burden sharing would be used to subsidise the sale of controlled cloth from the mill and handloom sector initially, and from the handloom

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sector eventually. There would thus be no burden on the public exchequer, consequent to the removal of the obligation to produce controlled cloth. The weaker sections of society would also continue to get subsidised cloth. Mill-made controlled cloth would be limited to 400 million square metres, and would be produced both by the NTC and private sector mills. After earmarking the NTC share of production of controlled cloth, contracts for the production of the remaining quantity would be given to private sector mills, on the basis of competitive bids, and subject to the price not exceeding the cost at which similar cloth would be manufactured by the NTC mills. NTC will be required to take on the responsibility of meeting any shortfall in production by the private sector mills.

7. The National Textile Corporation, besides participating in the production of controlled cloth would also be assisted in substantially stepping up their production, particularly in low-priced varieties with the accent on the needs of the common man. These mills would endeavour to reduce the cost of production and improve the quality of fabrics both by modernising their equipment and through increased use of cheaper synthetic fibre. The distribution system would also be improved so that weaker sections of the population, particularly in the rural areas, would be benefitted.

8. A number of important steps would be taken to enable the decentralised and handloom sectors to fulfil the role assigned to them in the industrial and employment policies of Government. These measures would be:

(i) No increase in weaving capacity would in future be allowed in the organised sector. The bulk of additional textile requirements would be met from the decentralised sector, increases in production of the organised sector being limited to that arising from the modernisation of outdated equipment. Powerloom capacity would also not be allowed to increase. Legislation would be introduced to prevent the growth of powerlooms.

(ii) The existing unauthorised powerlooms would be registered and regularised, on payment of a deterrent penalty.

(iii) After the phasing out of the mill made controlled cloth, subsidies would be allowed only for handloom and khadi cloth.

(iv) Steps would be taken to bring into operation adequate new spindleage, so as to meet the full demand of the handloom sector for yarn. The National Textile Corporation would, in particular, give this aspect priority attention, and increased availability of yarn from the public sector would help to maintain reasonable prices. The handloom units would also be registered, and such registered units would be given preference in the supply of yarn.

(v) The policy of reserving certain items of cotton textile for the handloom sector would be effectively implemented. Subject to this, Government would encourage the powerlooms in the decentralised sector to compete effectively with mills. For this purpose, reasonable facilities would be

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made available as would be required for making them run on sound and efficient lines.

9. The textile industry requires that cotton should be available at reasonable prices, and without wide fluctuations, throughout the year. It is equally necessary to protect the interests of the farmers growing cotton, and to save them from exploitation by middlemen. It is, therefore, intended that:

(i) The production of cotton would be enhanced through improvements in yields by the provision of irrigation facilities and other essential inputs. The objective would be to achieve self-sufficiency in cotton production;

(ii) The cotton growers would be assured of a reasonable minimum price for their produce. The role of the Cotton Corporation of India would be expanded, and it would be allowed to make commercial purchases in the market, so that cotton prices do not drop below the prescribed minimum. At the same time, the Cotton Corporation would be required to prevent cotton prices going above a prescribed limit, and for this purpose would be enabled to operate a buffer stock and make sales in the market. The buffer stock would be created mainly out of domestic surpluses in comfortable years, and also through imports, if necessary. The buffer stock would not be operated either to substitute for indigenous cotton production, or to depress the return to the growers. The Cotton Corporation would also be permitted to take such other steps, including exports, as to maintain cotton prices within the prescribed range;

(iii) The use of synthetic fibres would at all times be without detriment to the interests of cotton growers.

10. The adequate availability of woollens, and blankets, at reasonable prices, is a matter of considerable importance, particularly for the economically weaker sections living in the hilly parts of the country. The past difficulties of raw materials would be met by more liberal imports of wool as well as shoddy and increased use of acrylic. Programmes would be undertaken to increase more rapidly the domestic wool supply, especially of the quality required for garments. The ban on weaving capacity expansion in organised and powerloom sector will not apply to the woollen sector. While expansion of machine-made carpets would not, in general, be allowed, such expansion would be permitted in the export zones.

11. The modernisation programme in the organised sector, which is being implemented with the help of soft-loans, has made limited progress so far. Steps would now be taken to accelerate the pace of modernisation, and a definite time limit would be prescribed for the utilisation of the loans by the mills. Particular emphasis would be laid on selective modernisation for promoting exports.

12. The development of sericulture is important from the point of view of providing gainful employment, and additional incomes, to the rural population

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particularly in some of the less economically developed States. Necessary facilities and assistance would be provided for the promotion of sericulture in States which have a potential for this activity.

13. Research and development work would be strengthened to solve the problems facing the textile industry, and particularly those relating to handloom and khadi.

14. Government believe that now the nation will, for the first time, have an integrated policy framework for this vital industry and that this is an important step in the fulfilment of its pledge to meet the essential needs of the people of our country.

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APPENDIX 13.2

Statement on Textile Policy laid on the Tables of Lok Sabha/Rajya Sabha by the then Minister of Commerce, Steel and Mines on March 9, 1981

The textile industry occupies a place of unique importance in the economy of the country by virtue of its significant share in the industrial production, large work force employed and the fact that it not only caters to the clothing needs of the community but also generates substantial surplus for export. Sustained and balanced growth and development of this industry is therefore, vital to the economic growth of the country as also for fulfilment of one of the most essential needs of the people.

2. The last policy pronouncement on the textile industry was made by the erstwhile Government in August 1978. This policy framework suffered from several drawbacks and did not provide the requisite impetus for a steady and harmonious growth of this industry. The policy did not take a longer term of view of the needs of the industry as also the changing pattern of demand in domestic as well as international market. Thus, the full potential of various sectors of the textile industry remains to be realised. This objective can only be achieved by providing a comprehensive and integrated policy framework within which these sectors will grow in harmony and lead to higher output, productivity, income and employment and availability of raw materials and fabrics keeping in view the future needs and trends in the country and abroad.

3. The Government have given considerable thought to evolving such an integrated textile policy framework. The main objectives which the Textile Policy seeks to achieve are as follows:

(i) Increase in production of cloth of acceptable quality to meet the clothing requirements of a growing population, at reasonable prices;
(ii) Promote harmonious and balanced growth of all sectors of the textile industry in consonance with national priorities and the targets of the Five-Year Plan;
(iii) Maximum possible growth of handlooms in the decentralised sector and faster growth of khadi, hosiery and the natural silk sectors to generate more employment and raise the standards of living of small weavers and others employed in these sectors;
(iv) Strengthen and streamline infrastructure for distribution of cloth to weaker sections of the population;
(v) While maintaining the dominant position of cotton as the main fibre, encourage the use of man-made fibres and yarn by different sectors of the industry keeping in view domestic and international consumption trends, and for this purpose increase the availability of natural and man-made fibres and yarn; and
(vi) Generate surplus to produce fabrics of acceptable standards for the world market at competitive prices.

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4. The overall requirement of cloth in the country, including requirement for export, upto the end of Sixth Five-Year Plan period (1984–85) has been assessed at 13,600 million metres. While fixing the sectoral targets first priority has been given to the handloom sector and this sector will be called upon to achieve the maximum quantum it can produce in a realistic manner. Increased requirement of cloth will be met by an integrated approach mainly involving:

(a) Revival of dormant looms in the decentralised handloom sector for taking full advantage of the rural employment potential;
(b) Sustained modernisation of the decentralised handlooms, powerlooms and the organised mill sector resulting in increased productivity and better utilisation of the existing capacity; and
(c) Any marginal expansion in the weaving capacity of organised mill sector oriented specifically for purposes of exports.

5. Special efforts would be made to ensure availability of adequate yarn, so that the handloom sector is enabled to achieve the production target allotted to it. The National Handloom Development Corporation will be assigned the main role for procurement and distribution of yarn for the handloom sector at reasonable prices. Government would encourage formation of a network of cooperatives for effective integration of spinning, weaving and processing activities, for the growth and development of handlooms. The existing infrastructure of the Indian Institute of Handloom Technology and Weavers' Service Centres will be strengthened to provide necessary technical support to this sector. A new Institute of Handloom Technology will be set up in the north east for bringing about greater commercialisation for the handlooms situated in that area. Production of polyester and other non-cotton and blended fabrics by the handlooms will be encouraged. The policy of reservation exclusively for handlooms will be continued and special steps taken for its effective enforcement.

6. The powerloom sector has, over the years, grown in a haphazard manner mainly because of lack of deliberate policy direction. The Government feels that, consistent with the objective of providing adequate protection to the handloom sector, the growth of powerloom sector should be regulated and monitored within the framework of a realistic policy. To begin with, the existing unauthorised powerlooms would be regularised on payment of a fee. Fresh expansion of capacity would be so regulated that at the end of 1984–85 the increase over the base year in this sector is upto five per cent only. Moreover, this expansion will be permitted in respect of Handloom Cooperative Societies only. Suitable studies would be undertaken to determine the cost handicap of the handloom sector *vis-a-vis* powerloom. Suitable fiscal adjustments would be considered for removing the cost handicap, if any, of the handloom sector. More Powerlooms Service Centres will be established to provide technical know-how for improvement in operation skills and diversification of product-mix.

7. Production of controlled cloth will be stepped upto 650 million square metres to make low priced cloth available to the weaker sections of the

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population. Controlled cloth production would be restricted to sarees, dhoties and long cloth and roughly half the quantity produced would be of sarees. It is proposed to give the handloom sector a progressively increasing share in the controlled cloth scheme. At the same time, the National Textile Corporation will be called upon to the manufacture as much of the controlled cloth as it is capable of and at cost.

8. The Government is committed to encourage production of textiles and textile products in the khadi sector. Considering its large employment potential, it would be the endeavour of the Government to make the product of this sector more competitive and of better quality.

9. The infrastructure for distribution of controlled cloth, particularly in the rural areas, will be strengthened and streamlined. The State Governments would be encouraged to open more rural outlets and exercise stricter control over distribution.

10. To meet the requirements of yarn, additional spinning capacity will be established. Efforts will be made to locate spinning mills near the consumption centres of handlooms and powerlooms. The National Textile Corporation/State Textile Corporations will be fully utilised for making available adequate quantities of yarn at reasonable prices to the handloom and powerloom sectors.

11. The National Textile Corporation will undertake a modernisation programme aimed at improving the quality of yarn and fabrics, reducing costs and expanding its spinning capacity in the yarn deficit areas in the country, particularly in the eastern region. While the Corporation will continue to devote a significant part of its capacity to production of low priced cloth for common man, it will also endeavour to upgrade its product-mix in consonance with national pattern of cloth consumption.

12. To give effect to the multi-fibre policy, the following concrete steps will be taken:

(i) Ready availability of synthetic fibre and yarn in adequate quantities from domestic sources augmented as necessary by imports;
(ii) Domestic production base of such fibre and yarn will be expanded so that they are produced at the lowest possible prices;
(iii) Fiscal levies on man-made fibre and yarn will be reviewed;
(iv) Allow liberalisation in export of cotton and such other fibre-yarn that may be surplus to our domestic requirements.

13. The textile sector as a whole accounts for an important share of the total export earnings of the country. It is proposed to increase the quantum of exports of this sector by strengthening the existing infrastructure and adopting a more aggressive export strategy. Full advantage will be taken of modernisation and expansion of the industry for the purpose of exports. The multi-fibre approach indicated earlier will be highly relevant and beneficial in this respect. Special efforts will be made to improve the export performance of the handloom sector.

14. Lack of modernisation has been the bane of the textile industry in India.

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The Government is providing loans for modernisation to the textile industry at concessional rates and with longer repayment period. This policy has, to some degree, accelerated the modernisation of the industry, and it would be continued.

15. For the modernisation programme to be effective and sustained there must be adequate availability of textile machinery. Suitable steps will be taken to augment the production base of the textile machinery industry and textile accessories. Imports of appropriate technology and critical components of machinery will be allowed, wherever necessary. Due protection will be provided to the indigenous industry.

16. Adequate availability of cotton, which is the main raw material of the textile industry, at reasonable prices and without wide fluctuation is *sine qua non* for sustenance and growth of this industry. The Government would, therefore, always ensure that cotton growers are assured of reasonable prices for their produce. This will be done through the intervention of the Cotton Corporation of India and increased emphasis on cooperativisation of cotton trade. Steps will be taken to increase yield per hectare of cotton through disseminating knowledge of improved agronomic practices and increased use of fertilisers, pesticides, quality seeds and irrigation facilities. The Government will encourage research and development activity specially for the production of short duration and high yielding varieties of cotton.

17. The Government attaches great importance to development of sericulture because of its labour intensive character, high income generating capacity and export earning potential. Encouragement and support will be given to the Central Silk Board and State Government for rapid development of sericulture industry. Spun silk mills utilising silk waste will be set up in order to make use of the additional quantum of production of raw silk. While new spun silk mills will be set up, care will be taken to see that the existing spun silk mills and those which have been licensed recently are allowed to function to the maximum capacity with adequate supply of raw material required. The existing Sericulture Research and Training Institutions of Central Government will be suitably strengthened and expanded to translate the results at the laboratory level to the cocoon rearers and reelers who are engaged in production of silk cocoons and raw silk.

18. The Government would promote the growth of the woollen sector in order to ensure adequate availability of woollens and blankets at reasonable prices to economically weaker sections, particularly those living in the hill regions of the country. Programmes would be undertaken to increase the domestic wool supply and upgrade its quality. Shortage of raw material would be met by more liberal imports of quality wool as well as shoddy and increased use of acrylic. Expansion of spinning capacity has been permitted since September 1980, matching expansion in the weaving sector would follow.

19. Hosiery units, which are generally in the small scale sector, satisfy the demand of a large section of population for wearing apparel and also have great export potential. All encouragement will be given to this sector for expansion and development.

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20. The research and development activities will be promoted and coordinated and it will be ensured that the research is more closely related to action programmes including in the Plan and serve the needs of the industry as a whole including the decentralised sector. Better coordination between the research activities being carried out by different Textile Research Associations will be effected to ensure that there is no avoidable overlapping and that the results of research are disseminated to the industry expeditiously.

21. The Government trusts that the Textile Policy as stated above will provide the requisite framework and thrust necessary for a rapid and harmonious growth of all sectors of the textile industry in a long term perspective.

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APPENDIX 13.3

Statement on Textile Policy announced by the then Minister for Textile on June 6, 1985 and laid on the Table of Lok Sabha on July 26, 1985

The textile industry has a unique place in the economy of our country. Its contribution to industrial production, employment and export earnings is very significant. This industry provides one of the basic necessities of life. The employment provided by it is a source of livelihood for millions of people, most of whom live in rural and remote areas. Its exports contribute a substantial part of our total foreign exchange earnings. The healthy development and rapid growth of this industry is, therefore, of vital importance.

2. In the past few years, the development of the textile industry has been guided by the policy framework announced in March 1981. While considerable progress has since been achieved in several areas under this policy framework, the objectives of the textile policy outlined in the textile policy statement have not been fully achieved. Thus, the per capita availability for and the per capita consumption of cloth by our growing population still remain at a very low level. There is evidence of an increasing incidence of sickness in the organised mill sector, reflected in a large number of closed units. There is a large unsatisfied demand for durable synthetic and blended fabrics at cheaper prices which is not being met by indigenous production. The full export potential of textile product remains to be realised.

3. The textile industry has experienced fluctuations in its fortunes in the past also. However, an analysis of the current difficulties faced by the industry reveals that the present crisis of the industry is neither cyclical nor temporary, but suggests deeper structural weaknesses. Therefore, the Government has reviewed the present textile policy and after careful consideration, formulated this new policy for the restructuring of the textile industry in India with a longer term perspective.

4. The existing textile policy sets out a number of objectives. While each of these objectives is important, the multiplicity of objectives has inhibited the achievements of the main task of the textile industry, that is to increase the production of cloth of acceptable quality at reasonable prices to meet the clothing requirements of a growing population. Henceforth, the approach to the textile industry would be guided by this main objective. In the pursuit of this main objective, the employment and export potential of the industry shall be kept in view. The availability of cloth at affordable prices for the poorer sections of the population shall be augmented.

5. The textile industry has so far, been viewed in a compartmentalised manner, either in terms of various sectors namely, organised mills, powerlooms and handlooms or in terms of fibre use namely, cotton textiles, woollen textiles, man-made textiles and silk textiles. Classification on such grounds has led to structural rigidities in the textile industry. When the industry tends to be viewed in parts rather than as an integrated whole, it inhibits the technology

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use and production—flexibility commensurate with the pattern of consumer demand. Such distinctions have led to the application of a policy-mix which is sector-specific or fibre-specific resulting in the emergence of special interests on the one hand and fossilisation on the other. To achieve the main objective of the textile policy, it is necessary to eliminate the existing structural rigidities and to evolve more integrated view of the textile industry.

6. The proposed restructuring of the textile industry would have the following three main dimensions:

(a) The industry shall be viewed in terms of the stages of its manufacturing process, namely, spinning, weaving and processing;
(b) The industry shall be provided with fuller flexibility in the use of various fibres; and
(c) The industry shall be subject to more pragmatic policies regarding creation of contraction of capacities by units in order to increase competition and promote healthy growth in the industry.

7. In the spinning sector, all steps will be taken to ensure optimum utilisation of the spinning capacity. The availability of raw material for the spinning sector would be augmented. The infrastructure for the distribution of yarn would be strengthened. At the same time, necessary measures to encourage and increase spinning in the khadi sector would be taken in view of its large employment potential.

8. In the weaving sector, the distinct and unique role of the handloom sector shall be preserved. The growth and development of this sector shall receive priority. The composite—mills and the powerlooms have their own respective strengths and weaknesses. For the purpose of policy, powerlooms in the organised mill sector and in the unorganised powerloom sector shall, as far as possible, be treated at par and allowed to compete on the basis of their inherent strengths and capabilities.

9. In the processing sector, the independent power processors and the processing houses in the mill would be treated at par and each would be allowed to operate on the basis of its competitive strength. The small hand-processing units with limited output will receive special consideration.

10. The multi-fibre approach implicit in providing fuller fibre flexibility would be guided by the following considerations:

(a) Full fibre flexibility as between cotton and man-made fibres/yarn would be provided to the textile industry. Greater fibre flexibility in the use of wool shall be provided in a phased manner to units licensed for cotton and man-made textiles. Woollen units shall be given full fibre flexibility;
(b) Adequate availability of man-made fibres/yarn at reasonable prices shall be ensured by increased domestic production supplemented as necessary by imports.
(c) Creation of capacity by new units and expansion of capacity by existing units for production of synthetic fibres/yarn would be so determined as to realise economies of scale in order to reduce costs of production.

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(d) Fiscal levies on man-made fibres/yarn, and on the intermediates used as inputs for the production of such fibres/yarn, shall be progressively reduced in such a manner as to facilitate absorption of increased domestic production so that the benefit flows to the consumer in the form of lower prices of synthetic and blended fabrics; and

(e) The export window shall be kept open for man-made fibre/yarn.

11. The pre-eminent role of cotton as the main raw material of textile industry would be maintained. Utilisation of indigenous cotton would be ensured by domestic consumption and by export of cotton yarn and other manufactures. Cotton growers shall always be assured off-take of their produce at remunerative prices. Cotton needed by the textile industry would be made available in adequate quantity and at reasonable prices. The role and functions of the Cotton Corporation of India would be reformulated to include price stabilisation operations. For this purpose, the corporation would have the necessary access to international markets. The present varietal imbalance of cotton shall be corrected by a mix of policies aimed at encouraging increased use of long and extra long varieties of cotton on the one hand and higher production of short and medium staple varieties on the other.

12. Capacity expansion by existing units and capacity creation by new units would be permitted subject to the general industrial policies including the provisions of the MRTP Act and FERA. As a corollary, units would also be allowed to contract capacities, including closure of a unit or part thereof, wherever necessary and justified, provided the interests of the workers are fully protected. This approach would increase the degree of competition among units in the industry and create an environment conducive to a reduction in cost and an improvement in quality.

13. The unplanned growth of powerlooms in the unorganised sector has mostly tended to concentrate in a few areas. A significant proportion of the powerlooms remains unregistered and unauthorised. Henceforth, there shall be compulsory registration of all powerlooms. The organisation of production in the powerloom sector should be guided by the objectives of raising productivity, increasing efficiency, improving workers' welfare and facilitating locational dispersal. In keeping with these objectives, a suitable package of measures would be evolved in order to bring about a healthy development of the powerloom sector. It would be ensured that powerlooms do not violate the locational guidelines for industries, particularly in large cities and metropolises. Effective measures would be taken to see that the powerlooms do not encroach upon articles reserved for exclusive production by the handlooms. The organisational set up required for the above purposes shall be strengthened.

14. In order to preserve the unique role of handlooms and enable them to realise their full potential as also to ensure higher earnings for the handloom weavers, the following main steps shall be taken:

(i) The development of handlooms through cooperatives and Central/State level corporations shall be intensified;

(ii) Greater emphasis will be placed on the modernisation of looms and

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provision of technological and other inputs for improving productivity of handlooms and the quality and finish of handloom products;

(iii) Special efforts would be made to ensure adequate availability of yarn and other raw materials to the handloom sector. The infrastructure for procurement and supply of such inputs at reasonable prices to the handloom weavers shall be strengthened through the operations of the National Handloom Development Corporation and the State-level handloom agencies;

(iv) The production of mixed and blended fabrics on handlooms shall be encouraged with a view to improve the wages and earnings of the weavers;

(v) Protection to handlooms will be provided by reserving articles for their exclusive production in the handloom sector under the "Handloom (Reservation of Articles for Production) Act, 1985". The provisions of this Act shall be strictly enforced and the machinery for doing so shall be suitably strengthened;

(vi) To improve the competitiveness of handlooms, steps would be taken to remove, as far as possible, the cost handicap of the handlooms *vis-a-vis* the powerlooms by suitable fiscal measures;

(vii) To improve the marketing of handloom products, infrastructure of marketing complexes, training of marketing personnel and intensive publicity shall be organised. Steps would be taken to upgrade the technical, managerial and administrative skills of personnel employed in the handloom sector;

(viii) To strengthen the data base for the handloom sector for better planning and execution of handlooms development programmes, a census of handloom shall be undertaken. The machinery for implementation, supervision and evaluation of handloom programmes shall be strengthened.

15. In order to improve the working conditions of the handloom weavers and to provide direct benefit to them, the following schemes, amongst others, would be introduced:

(i) A contributory thrift-fund scheme to provide assistance to the handloom weavers during times of need;

(ii) A workshed-cum-housing scheme to provide a better place for work and living to the handloom weavers.

16. The responsibility for the entire production of controlled cloth shall be transferred to the handloom sector by the end of the Seventh Five-Year Plan. The quantum of controlled cloth and Janata cloth which was fixed at 650 million metres shall be increased in order to provide a larger quantum of cloth at affordable prices to the poorer sections of the population. Measures will also be taken to improve the quality of cloth and to ensure that it reaches the target group. The public distribution for controlled cloth would be strengthened and streamlined.

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17. All encouragement would be given to the expansion of the khadi programme in view of its large employment and income generating potential in the rural areas, specially among women. Steps would be taken to improve the production process, upgrade the skills of workers, raise productivity, diversify the product range and strengthen the marketing arrangements under the khadi programme.

18.1 The incidence of growing sickness in the textile industry, particularly in the organised mill sector is a matter of great concern. The reasons for sickness are manifold and complex which include financial difficulties, managerial incompetence and negligence, obsolete plant and machinery, inadequate maintenance, incorrect product-mix, poor marketing, excess labour and poor industrial relations. While steps necessary to improve the health of the industry as a whole and to prevent sickness are indicated in this statement, unit specific problems would have to be tackled on a case to case basis.

18.2 The measures needed for the revival of a sick unit have to be based on a detailed and objectives study of the causes that led to sickness and identification of the steps necessary to revive the sick unit. The distinction shall have to be made between units which are potentially viable and units which are not.

18.3 In the case of potentially viable units a rehabilitation package might, *inter alia*, comprise of additional balancing equipment, replacement of existing machinery, change of product-mix, better marketing strategy, rationalisation of labour including improvement of work norms, strengthening of management and organisation and adjustment of capacity in the different stages of manufacturing. In such cases, suitable financial package would need to be worked out. A nodal agency would be designated to evolve and manage this package. The financial and technical performance of such units shall be closely monitored.

18.4 In some cases, the units, although potentially viable, may have been led to sickness by inept management or mismanagement. In such cases, the existing management may have to be changed. Change of management will be essential in cases where restructuring of capital and liabilities is contemplated.

18.5 The measures enunciated in this policy would enable some of the units to come out of their present difficulty. However, where a unit has no expectation of becoming viable in a reasonable period of time, there may be no alternative but to allow the unit to close provided the interests of the workers are protected. Takeover by the government or nationalisation of such sick units does not provide solution to the problems of sickness and the government would not, as a rule, intervene in such cases.

18.6 In the process of revival of sick units and in the event of closure or liquidation, the interests of labour shall be fully protected. All possible avenues must be tried before retrenchment to minimise the social costs of transition implicit in the restructuring of the textile industry. Rationalisation of labour and revision of worknorms would need to be negotiated with labour to arrive at a satisfactory solution. The funds needed for payment of retrenchment benefit to labour shall be part of rehabilitation package and loans needed for such compensation shall be provided on concessional terms. Displaced workers,

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would be given priority in securing employment in other units under the same management or other industrial units in the same area. Concessional finance would be made available for providing opportunities of self-employment. Workers shall also be encouraged to form cooperatives to run part or whole of the units. Schemes shall be formulated for training and re-training of labour to facilitate re-deployment.

18.7 It is of utmost importance that the interest of the workers who might be displaced by permanent closure of units is safeguarded. For this purpose schemes shall be formulated to provide relief for an interim period in addition to the statutory benefits. A rehabilitation fund for workers of the textile industry would be created to provide relief to such workers for a limited period. Such a fund shall, *inter alia*, be financed by a suitable cess on the textile industry.

18.8 It is necessary to monitor closely the performance of textile units to detect any sign of incipient sickness so that timely corrective measures can be taken. For this purpose, the monitoring mechanism at various levels shall be strengthened.

19.1 One of the main reasons for the present difficulties of the industry, is inadequate modernisation and renovation of old and obsolete plant and machinery. Despite encouragement and incentives by the government, the industry has only modernised to a limited extent. Government policies would aim to accelerate the pace of modernisation in the industry.

19.2 There has been very little modernisation in the ginning area, which has adversely affected the quality of cotton and hence the end product of the industry. Expeditious replacement and modernisation of existing gins would receive priority. Concessional finance shall be made available for this purpose.

19.3 Modernisation in the spinning, weaving and processing sectors shall be undertaken on the basis of carefully identified needs of each unit, as to installation of balancing equipment, renovation of existing machinery, replacement and technology upgradation.

19.4 For the purpose of modernisation, adequate funds would continue to be provided under the soft loan scheme of the IDBI. In order to enable the industry to generate internal resources for modernisation, a textile modernisation fund shall be created.

19.5 A national level standing advisory committee on modernisation of the textile industry shall be set up, which would include representatives of management and labour as also suitable technical experts and representatives of financial institutions. This committee shall identify on a continuous basis the needs of modernisation and the type of modernisation that the industry should adopt.

19.6 It will be ensured that in the process of implementation of modernisation programme, the interests of workers are adequately protected.

19.7 The indigenous textile machinery manufacturing industry shall be given encouragement to reduce costs, upgrade technology and improve the quality of machinery. However, liberal import of such textile machinery, which is not

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manufactured indigenously, shall be permitted at or near the international prices.

19.8 For expeditious modernisation of the handlooms, research for evolution of improved types of handlooms and adequate arrangements for ensuring swift and smooth transfer of technology from the research institutions to the handloom weavers will be given priority.

19.9 More powerloom service centres shall be established to enable the powerloom weavers to improve their skills in regard to maintenance of equipment, design development and quality of weaving.

19.10 The textile research associations would be actively involved with the process of modernisation and its monitoring and their role expanded so that they may also cater to the needs of the handlooms and powerlooms.

20. The National Textile Corporation contribute significantly to the total production of yarn and fabrics in the organised sector. A number of mills under the NTC have been able to eliminate cash losses through a programme of rehabilitation. Greater effort is needed to implement programmes of selective modernisation so that as many units as possible become profitable. The continued operation of units, which are incapable of becoming viable, would mean a continued drain on scarce resources and such units or parts thereof may have to be closed down to prevent any further losses. In such cases, the interests of the workers would be adequately protected. With the implementation of a programme of modernisation of equipment, strengthening and improvement of management, raising productivity of labour and improvement of work-culture, it is expected that NTC would provide a stabilising influence and healthy competition in the textile industry.

21. Exports from the textile sector contribute a significant portion to the total foreign exchange earnings derived from exports. There are, however, certain constraints, both internal and external, which have meant that the full potential of textile exports has not yet been realised. In the international context, the government shall strive to bring about a liberalisation of world trade in textile which would alleviate the external constraints on our exports. In the domestic sphere, all necessary steps would be taken to exploit our comparative advantage in the sector and to make our exports of textiles more competitive in the world market in terms of both quality and prices. For this purpose, the framework of policy would ensure that inputs for export production including capital goods, are made available at or near world prices. At the same time, it would be necessary to intensify efforts in the area of product and market development, reorient marketing strategy, and create capabilities for fashion and design development. Exports of products from the handloom sector, including silk products, have considerable potential in the world market. All encouragement would be given to assist in the realisation of this potential. Insofar as export production is an integral part of the total production base in the industry, the measures for restructuring and modernisation of the textile industry, outlined in the statement, shall provide the necessary impetus to exports.

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22. The government would continue to lay emphasis on the development of sericulture on account of its employment potential in rural areas, high income generating capacity and ability to earn valuable foreign exchange through exports. Encouragement and support will continue to be given to the Central Silk Board and State Governments for rapid development of this industry in all parts of the country. Greater attention will be given to schemes relating to production of quality seeds, plantation of improved varieties and expansion of sericulture activities over larger areas and achieving a higher yield per hectare. The existing extension and training services for educating the farmers in the improved technique of silk worm rearing and control of diseases would be strengthened. Efforts shall be made for the development of technology in reeling, weaving and processing for improving the quality of the silk fabrics.

23. The government would continue to promote the growth of the woollen sector in order to ensure adequate availability of woollens and blankets at reasonable prices to economically weaker sections, particularly those living in hilly regions. Programmes would be undertaken to augment indigenous raw wool production in terms of both quantity and quality. Since the indigenous raw wool production is not enough to meet the requirements of the industry, liberal policy regarding imports of quality wool as well as shoddy would be continued. Research and development programmes will be promoted so that cheaper and better quality woollen products are developed for the domestic as also export markets.

24. The knitting and apparel manufacturing sectors contribute significantly to employment generation and export earnings besides meeting the domestic demand for clothing. The government shall pursue policies for strengthening, modernising and developing the sectors.

25. The existing marketing and distribution system of the industry would be reviewed to introduce changes wherever necessary. In order to evolve a more efficient system which would reduce costs and margins and provide both consumer satisfaction and consumer protection. The institutional mechanism for market research would be strengthened.

26. The textile industry has been subjected to a number of controls and regulations, many of which have become irrelevant or unnecessary with the passage of time. Such controls would be reviewed for elimination, phasing out or modification, as the case may be.

27. The government hopes that the policy framework outlined above would facilitate the necessary restructuring of the textile industry in India, would equip it to make an increasingly significant contribution to output, employment and exports and would satisfy the clothing needs of all sections of the population.

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14

TOURISM POLICY OF GOVERNMENT OF INDIA

INTRODUCTION

The twentieth century has virtually ushered in an era of international tourism. Owing to rapid growth and remarkable development of tourism, particularly after Second World War, tourism has developed into an immense enterprise. The innovations in industrial and production technology providing more leisure time, increase in disposable income of the people with the expansion of economic prosperity, diffusion of modern transport technology, widespread use of improved communication system and promotion of marketing facilities have all contributed to the rapid growth of tourism all over the world.

Tourism—A Catalyst to Economic Growth

From the economic point of view tourism is especially important in developing countries, like India. It is a catalyst to economic growth and foreign exchange earnings. The various and cumulative benefits of tourism can hardly be over-emphasised. Its importance as an economic factor is also evident from its being a multibillion dollar activity, the second largest industry after oil and the largest single employer in the world. Apart from removing regional imbalances and opening new growth centres, providing employment opportunities for young men and women, yielding tax revenue to the government, sustaining many trades like handicrafts, etc. tourism ensures a minimal use of natural resources and optimum use of manpower and expertise.

Tourism is one of the most important industries after oil. Unlike oil it does not impose any burden on the country's economy. In many developing countries the volume of receipt from international tourism tends to be of greater magnitude than that of merchandise export. It does not export any commodity or anything material but the services only for much needed foreign exchange.

Tourism—A Melting Pot of Different Cultures

Besides the economic gains, there is hardly an activity which presents as wide a scope for promotion of human understanding so smoothly and so successfully as the international tourist industry. Tourism has also led to resurgence of many cultures. Cultural tourism, whose scope is growing rapidly, has enabled the countries to accord importance to the development of cultural products intended for visitors and to the protection of natural environment.

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Tourism—A Vital Force for World Peace

Apart from being an economic and cultural force, tourism vitally helps in promoting universal brotherhood and world peace also. It helps in bringing about closer understanding between the peoples of diverse nationalities, customs, religions, cultures and social backgrounds. It was in this context that Pandit Jawaharlal Nehru had popularised the slogan, "Welcome a visitor, send back a friend". Tourism has in fact made an important contribution to the growth of friendly relations among nations. It has effectively contributed towards the establishment of a New International Economic Order.

Tourism can be a vehicle for the realisation of man's highest aspirations in the quest for knowledge, education, understanding, acceptance and affirmation of the originality of cultures and respect for the moral heritage of different people. These spiritual values of tourism are also significant for world peace and human understanding.

Despite its world-wide operations, tourism can function in the smallest of settings as effectively and efficiently as in wide-ranging, multi-national operations. It has thus the flexibility of adjustment to situations which few other industries have. It can be a small enterprise or a multi-million project. Tourism is thus both a labour-intensive and a capital-intensive activity.

Tourism—Source of Many Problems

However, ill-managed tourist activities may be the source of many problems. Unregulated tourism can cause unbalanced social change and economic development. It can generate social tension and cause environmental pollution resulting in distortion of life styles and cultural decay which are the very foundation on which tourism is built. The haphazard growth of tourist facilities and injecting tourist inflow beyond the absorption capacity of the place/region, destruction of traditions in the culturally sensitive areas, clandestine selling of antiques and vandalism are some of the negative aspects of tourism which can lead to the depletion of the tourism resources of the country. Similarly the environmental aspects of industrial, urban and other types of development, whether in the immediate vicinity of archaeological sites and places of natural beauty or in their peripheral areas, are a matter of deep concern as they can adversely affect the development of tourism.[1]

India—A Dreamland of Tourists

Travel traditions in India are very old. Wheel and money, the twin aids to human movement, were in vogue in pre-Vedic Indus Valley civilisation. Vedic hymns enjoining welcome reception even to unscheduled visitors are more than 5000 years old. India's cultural heritage is one of the most extensive and varied. Throughout the ages, many races which had either temporarily come into

[1] See *Tourism Policy*, Ministry of Tourism, Government of India, New Delhi, 1982, p. 14.

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contact with India or come to permanently settle within her borders, have contributed to its richness. The grandeur of its ancient monuments, the beauty and rhythm of its folk and classical dances, its colourful and crowded bazars, the perennial snow-covered towering mountain peaks in the north and the backwaters of Kerala in the south and, above all, its hospitable people are among the many facets which are timeless in their appeal. The German scholar Max Mueller had said, "if we were to look into the whole world to find out the country most richly endowed with all the wealth, power, and beauty that nature can bestow in some parts, a very paradise on earth, I should point to India." In fact, India has attracted visitors from other countries as far back as fifth century AD when Huan Tsang from China visited India and gave an account of Indian civilisation that extended from the snow-capped Himalayas in the north to Kanyakumari at the southern-most tip of India.

To a large number of the people across the world, India is almost a dreamland—exotic, mysterious and full of colour, pomp and pageantry. The new image, however, is of a modern India—tenth most industrialised country, having its own nuclear reactors and satellites, the most populous and popular democracy in the world engaged in the valiant task of reconstruction and development. India is, thus, today a synthesis of a rich and ancient culture and an emerging modern society. It has widely diversified attractions to offer to a keen tourist. The varied attractions for foreign tourists are the cultural architectural places together with wild life sanctuaries, beaches, winter sports at Gulmarg, convention facilities, etc.

TOURISM IN INDIA

The Beginning

The role of tourism was first perceived in India in the year 1946 when a Committee under the chairmanship of Sir John Sargeant, Secretary, Department of Education, was appointed to advise the Government on the development of tourism. The Committee submitted its report in May 1947. As a follow up to some of its recommendations, a small Tourism Branch started functioning under the Ministry of Shipping and Transport in 1949. Later, four tourist Field Offices were set up in Delhi, Calcutta, Bombay and Madras.

Stages of Tourism Development

Tourism development in India has been very interesting. It has passed through many stages. The Government of India took note of this new phenomenon and of its economic implications soon after achieving independence. A chain of field offices were set up in India and in major world capitals to help tourists plan and organise their tours. The development of tourist facilities was taken up in a planned manner from 1956 coinciding with the Second Five-Year Plan (First Plan had no mention of tourism). It was, however, in the year 1957 that a

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separate Department of Tourism was established as a result of the recommendations of the Estimates Committee of the Parliament with the twin objectives of (a) the development of facilities at certain selected places visited largely by foreign tourists: and (b) to provide facilities primarily for home tourists at a number of places of local and regional importance.[2] The first Tourism Development Council was set up in 1958 as an apex body to associate the State Governments, the national carriers, hotels and travels industry, with the development of tourism in India.

Development of Tourism Sector was explicitly included under the transport sector from the Second Five-Year Plan. The subject 'Tourism' came to the Department of Aviation in September 1966. The same year the Department of Aviation was given an extended name of the Department of Aviation and Tourism. By March 1967 the functions and responsibilities of the Department became so important that the Union Government decided to elevate the Department of Aviation and Tourism to the status of Ministry of Tourism and Civil Aviation. An independent Ministry of Tourism came into being in May 1986 and from October 1986 the Ministry was under the charge of Cabinet Minister.[3]

In June 1988, the Ministry was merged with the Ministry of Civil Aviation and the new Ministry of Civil Aviation and Tourism came into being under the independent charge of a Minister of State. The Department of Tourism (DOT) is responsible for the promotion of India as a tourist destination and for development of tourism infrastructure facilities in the country.

The integrated development of tourism at the national and international levels is achieved through the activities of:

(a) Department of Tourism,
(b) Indian Institute of Tourism and Travel Management,
(c) National Council for Hotel Management and Catering Technology, the Institute of Hotel Management and Foodcraft Institute, and
(d) India Tourism Development Corporation Limited.[4]

In order to promote conference traffic to India, the Travel Trade has set up the India Convention Promotion Bureau (ICPB). The membership of ICPB comprises the Department of Tourism, National Air Carriers, hoteliers, travel agencies, tour operators, International Congress Sectors, State Tourism Development Corporations, Airport Authorities and other segments connected with Travel Trade. ICPB has recently got the approval of International Congress and Convention Association which will help in obtaining more Conferences and Conventions for India.

The tourist offices in India and abroad disseminate information regarding

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[2] L. C. Mahajan: *India Beckoning to one and all*; PIB, Government of India, January 14, 1983, p. 2.

[3] The Indian Institute of Public Administration: *The Organisation of the Government of India*, New Delhi, Second Revised Edition, 1971, p. 249.

[4] Ministry of Civil Aviation and Tourism, Department of Tourism, *Annual Report* 1988–89, p. 3.

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the tourism infrastructure in India. These offices liase with State Governments, State Tourism Corporations and also help the Ministry in exercising control over different segments of the travel trade to ensure that services to tourists are maintained at the national/international level and are available at reasonable rates. Given the prevailing scenario the existence of the overseas Tourist Offices of DOT have acquired considerable importance. These offices are the Ministry's outposts in the traffic generating markets of the world and their prime function is to create an awareness of India as an important/attractive tourist destination.[5]

The Indian Institute of Tourism and Travel Management was set up in January 1983 with its registered office at New Delhi. It organises seminars, workshops on hotel management, restaurant management, tourism planning and on functional areas such as, finance, marketing, etc.[6]

In order to consider and recommend measures necessary for the promotion of tourist traffic to India from other countries and from one part of the country to another, there is a Tourism Advisory Board which reviews the tourist trends and suggests appropriate measures.[7]

The Planning Commission had set up a 12-member Committee, headed by the Chairman of the Trade Fair Authority of India, to prepare a perspective plan for the development of tourism till the turn of the century. The terms of the Committee included evaluation of the economic and social relevance of international and domestic tourism, defining the role of Central Ministries, State Governments, public and private institutions and recommending proposals for drawing up a long-term plan for promoting the growth of tourism on sound lines. The Committee submitted its report to the Government in May 1988.[8] One Steering Group and one Working Group have been set up in December 1988 to study tourism and provide the requisite inputs in connection with the formulation of the Eighth Plan.

In the last two or three years the Department of Tourism has been generally trying to secure for tourism, from various other Ministries and from the State Governments, the status of an industry, especially an export-oriented industry, and the various facilities, incentives or concessions which are applicable to an export oriented industry. Following the declaration of tourism as an industry by the National Development Council, thirteen State Governments and two Union territories have declared tourism as an industry and three State Governments have declared hotel business as an industry. Also term loans by the Financial Institutions have been made available for the hotel industry.

The Department of Tourism (DOT) has taken up several promotional activities overseas. Support was extended to whole-sellers and tour operators overseas for launching new India programmes in the major markets. An

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[5] *Ibid.*, p. 12.
[6] Ministry of Information and Broadcasting, Publications Division, *India 1985—A Reference Annual*, May 1986, p. 464.
[7] *Ibid.*, p. 465.
[8] *Annual Report*, 1988–89, *op. cit.*, p. 81.

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agreement has been signed with Singapore International Airlines for special India promotions to be launched in Australia, Japan and South East Asia. An "Affordable India" campaign has been launched in Europe to generate off-peak seasonal traffic.[9] Besides promotional activities, the Department of tourism has been involved in the task of developing a tourist infrastructure by providing budget accommodation, wayside facilities and development of specific tourist centres. The Department of Tourism has given high priority to the development of human resources for the hotel catering industry on the one hand and the tourism and travel industry on the other, as an important aspect of infrastructure building.

With the objective of achieving optimum impact, the Department of Tourism and Air-India under the Operations Schemes are engaged in joint promotional efforts in Europe, the UK, America, East Asia, West Asia and Australia through 18 Tourist Offices located in various parts of the world. 'Operation America' covers the US, Latin America, Canada and the Caribbean islands. "Operation UK" covers UK and Ireland. "Operation Europe" covers the continent. "Operation Australasia" covers Australia, New Zealand, Fiji Islands, Singapore, Malaysia and Indonesia. "Operation East Asia" covers Japan, Philippines, Hong Kong and Thailand, and "Operation West Asia" covers West Asia.

In order to attract a broader segment of the overseas travellers, the Department of Tourism has been actively promoting international charters to generate tourist traffic for the overseas market. The Ministry has liberalised the charter policy and charters can now land in eleven cities. Also, a charter can use one airport for landing and another for exit and can carry the inclusive tour charter passengers between these two points. All charter passengers are required to pay minimum of 200 US dollars per person for a 7-day package.[10]

INDIA AND WORLD TOURISM

During the decade 1960–70, the growth of international tourism in India almost kept pace with that of the world, which was about 9 per cent per annum. However, tourist arrivals in India during the years between 1970 and 1980 witnessed a much higher annual growth rate (11.0 per cent) than in the world as a whole (5.9 per cent). During 1981–85, the growth in the world tourist arrivals (3.1 per cent per annum) began to decrease owing to the slump in the economic situation in the generating countries. This resulted in a slow-down of the growth in tourist traffic to India (including nationals of Pakistan and Bangladesh, figures of which are being included in total tourist arrivals from 1981 to 1983. The year 1984 showed negative growth (8.5 per cent) for the first time. However, 1985 turned out to be brighter for tourist arrivals in

[9] Planning Commission: *Annual Report*, 1988–89, pp. 85, 102.

[10] *Annual Report*, 1988–89, *op. cit.*, pp. 3.16–59 and 11.1.

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India as it revived itself to normal growth. An increase of about 5.5 per cent was achieved in respect of India (as against a provisionally estimated world-wide growth of about 4.1 per cent) over the previous year. The share of India's tourist traffic in world tourist movements accounted for about 0.18 per cent in each of the years 1960 and 1970, which went up to about 0.28 per cent in 1980. By 1985, India's share further shot up to about 0.39 per cent, with the inclusion of Pakistan and Bangladesh nationals.[11] The international tourist arrivals in 1986 were 14,51,076 including 3,71,026 Pakistan and Bangladesh nationals.[12] The tourist arrival in India in 1987 (excluding nationals of Pakistan and Bangladesh) was 11,63,774; in 1988 it was 12,39,992. In 1988, foreign tourist arrivals registered an increase of 6.5 per cent over 1987. Compared to the 1986, there has been an overall percentage increase of 14.8 per cent in foreign tourist traffic. This trend has been sustained due to the persistent efforts to promote India as an attractive tourist destination in the overseas markets. Tourism has emerged as one of the top foreign exchange earning industries of the country. The contribution of this sector during 1988–89 is projected to be above Rs. 2000 crore.[13]

Although, India's performance appears to be negligible for a country of its size and potentials, these figures will acquire proper perspective if viewed in the context of period of stay of the tourists. The average stay of foreign tourists visiting India (excluding nationals of Pakistan and Bangladesh) is computed to be about 28 days (estimated as about 30 days for 1985). This compares favourably with the duration of stay of foreign tourists in other countries, particularly neighbouring countries like Nepal, Thailand, Philippines, Singapore and Sri Lanka. As per the WTO statistics, the average duration of stay in India is only next to Australia where it was 33 days during 1983. By this reckoning, about a million tourists staying on an average of 28 days in India, is significantly a larger volume than the 2 or 3 million tourists spending about 4 days on an average in Singapore, Thailand or Hong Kong.

As per the latest available statistics, about 80 per cent of world tourist movements is confined to the continents of North America and Europe combined with Japan, Australia and New Zealand. 82.9 per cent of the tourist movements is intra-regional in character and coupled with the fact that these countries are also the major tourism generating countries, the lion's share of the market is within Europe and North America. Countries like India can, therefore, aspire to get only a portion of the small share left for them outside the circuit of the developed countries. In other words, India is one among a hundred or so other countries vying for the small segment of long haul travellers from the main tourist generating countries.[14]

The Federal Republic of Germany is one of the largest suppliers of tourists to India. Additionally the per capita expenditure of German tourists on overseas

[11] Based on information received from the Ministry of Tourism.
[12] Government of India, Ministry of Tourism, *Annual Report*, 1986–87, p. 12.
[13] *Annual Report*, 1988–89, *op. cit.*, pp. 1, 37.
[14] Based on information received from the Ministry of Tourism

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travel is the highest in the world. It has been recognised of late that there is considerable scope for promoting in-bound tourism from FRG to India. In order to exploit this potential a Committee comprising experts from both the nations has already met and has been able to identify some of the problems facing German tourists in India.[15]

TOURISM AND THE FIVE-YEAR PLANS

The Approaches

The developmental approach for tourism has evolved from the isolated planning of single units facilities in the Second and Third Five-Year Plans to integrated development in the Fourth Plan and thereafter to integrated area development in Fifth and Sixth Five-Year Plans.[16]

The Second Five-Year Plan

Development of tourism was explicitly included under the Transport Sector from the Second Five-Year Plan onwards.* Provision was made for aid to tourist associations and tourist bureaus run by States and the local authorities and for publicity in the regional languages particularly for the development of tourism within the century.

The Third Five-Year Plan

Allocation of responsibility for the development of tourism in the Central and the State Sector was continued in the Third Plan. While the Central schemes were meant to provide facilities at places which were important for foreign tourists, the State Plans mainly catered to domestic tourism. Measures were considered to assist the industry with loans for the construction of new hotels and improvement or expansion of the existing ones.

The Fourth Five-Year Plan

It was in the Fourth Plan that the economic significance of tourism was fully realised. Emphasis on the provision of accommodation, transport and recreational facilities was maintained. The concentration of efforts in areas identified with the larger flow of foreign tourist traffic was also maintained. A new objective strategy was formulated to promote 'destinational traffic' as distinct from 'transit tourist' traffic.

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* Appendix 14.1 indicates total amount spent by the Government on the Department of Tourism and ITDC for development of Tourism under different plans.

[15] *Annual Report*, 1988–89, *op. cit.*, pp. 13–14.

[16] See Backgrounder of PIB (Government of India) entitled, *Growth of Tourism in India.*

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The Fifth Five-Year Plan

Programmes for the development of Tourism under the Fifth Five-Year Plan included integrated development of tourist resorts at Kovalam, Goa, Gulmarg and Kulu-Manali, construction of a number Youth Hostels, Tourist Bungalows and forest lodges, promotion of wild life tourism, and cultural tourism. The disbursement of loans for hotel construction by the private sector was to be done by the Industrial Finance Corporation of India (IFCI) and not by the Department of Tourism as was done earlier. Programmes of ITDC (India Tourism Development Corporation) included the expansion of hotels, putting up of travellers' lodges, motels and cottages, duty free shops and strengthening of the transport units. As for the role of the State Sector, development of tourism in the hill areas was given special priority. It was re-emphasised that domestic tourism would be encouraged for the economic development of the backward regions and for the sake of fostering national integration.

The Sixth Five-Year Plan

The major objective of the investments in the tourism sector in the Sixth Plan was to optimise the use of the existing capacity and to increase substantially tourist accommodation in the public as well as in the private sector. For the first time perhaps the likely impact of tourism development on environment was recognised. Accordingly it was mentioned that it would be ensured that the development of tourism did not adversely affect the environmental surroundings and local culture.

The Seventh Five-Year Plan

The Approach Paper to Seventh Five-Year Plan recognised the vast potential of tourism in the country. It had, in principle, agreed to accord tourism the status of an industry. It laid emphasis on encouraging private sector investments in developing tourism and leaving development of support infrastructure to the public sector investments. The main objectives for the tourism sector in the Seventh Plan are: (i) faster development of tourism; (ii) according the status of an industry to tourism; (iii) re-defining of the role of public and private sectors to ensure that the private sector investment is encouraged in developing tourism and the public sector investment is focussed mainly on development of support infrastructre; and (iv) exploiting tourism potential to support local handicrafts and other creative arts and to promote national integration.[17]

Keeping these in view, the development activities are being enlarged considerably in the Seventh Plan. The main thrust in the Seventh Plan is to vigorously promote domestic tourism in India and move towards diversification of overseas tourism. The Department of Tourism is particularly keen that there

[17] Based on information received from the Ministry of Tourism.

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should be more movement of people from one region to another. To provide budget accommodation for domestic and foreign tourists, *Yatri Niwases* are being constructed at a number of places in the country. Low price accommodation is being provided to pilgrims in the form of *Yatrikas* by the *Bharatiya Yatri Avas Vikas Samiti*. Under cultural tourism emphasis is laid on development of Buddhist pilgrimage centres and has launched specific projects.

For the Seventh Plan period, the aim is to achieve an annual growth rate of 7 per cent in tourist arrivals. The Planning Commission has approved an outlay of Rs. 68.68 crore for various schemes to be implemented by the Directorate General of Tourism during the Seventh Five-Year Plan (1985–90). The allocation for 1985–86 was revised to Rs. 12.82 crore in the Revised Estimates. The actual expenditure in this period was Rs. 12.85 crore. The allocation for 1986–87 was revised to Rs. 18.27 crore and the actual utilisation was 18.42 crore. For 1987–88 the allocation was Rs. 20.45 crore after revision due to the drought situation in the country and the actual utilisation was Rs. 20.58 crore. For 1989–90, an allocation of Rs. 45.00 crore has been approved.[18]

TOURISM POLICY*

The tourism policy was presented to both the Houses of Parliament on November 3, 1982. It was the first attempt by the Ministry of Tourism to arrive at the 'National Tourism Policy'. The intention of announcing a national policy on the subject was to give a new sense of purpose and direction to its development and promotion and to add new ethos and value to tourism.[19]

Objectives

The policy document contains five main objectives of the Tourism Policy of Government of India. According to it, the Government's objectives are to so develop tourism that:

(i) It becomes a unifying force nationally and internationally fostering better understanding through travel.

(ii) It helps to preserve, retain and enrich our world-view and life-style, our cultural expressions and heritage in all its manifestations. The prosperity that tourism brings must cause accretion and strength rather than damage to our social and cultural values and depletion of our natural resources. In tourism, India must present, itself on its own terms—not as an echo or imitation of other countries, other cultures and other life-styles.

(iii) It brings socio-economic benefits to the community and the State in terms of employment opportunities, income generation, revenue

* For text of the Tourism Policy, see Appendix 14.2.

[18] *Annual Report*, 1988–89, *op. cit.*, p. 31.

[19] See L. S. Deb., December 2, 1982, c. 8.

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generation for the States, foreign exchange earnings and, in general, causes human-habitat improvement.

(iv) It gives a direction and opportunity to the youth of the country both through international and domestic tourism to understand the aspirations and viewpoints of others and thus to bring about a greater national integration and cohesion.

(v) It also offers opportunities to the youth of the country not only for employment but also for taking up activities of nation building character like sports, adventure and the like. Thus as a programme for the moulding of the youth of the country, tourism is of inestimable value.

Tourism in India has got various dimensions—domestic, international and cultural.

Domestic Tourism

Domestic tourism has acquired an enormous size in India, as far as volume of passengers travelling by railway and road transportation is concerned. The policy document accepts that the facilities provided to the large number of pilgrims are not sufficient. It proposes, therefore, to improve and expand facilities for domestic tourists.

International Tourism

Looking at the rising share of tourism in earning foreign exchange and its contribution towards creating international goodwill and understanding, the policy document pledges to accord high priority to the development of international tourism. Increasing attention will be given to Regional Tourism, i.e., promotion of tourism among South Asian countries including Afghanistan, Maldives and Iran.

Cultural Tourism

Since our historical and archaeological monuments are the biggest elements in attracting foreign tourists to India, it is proposed to provide adequate tourist facilities at the major cultural centres in a planned manner in coordination with the other concerned agencies including the State Governments. The intention is to fully exploit the rich heritage of archaeological monuments, religious centres dear to the followers of various religions of the world as well as the rich heritage in the field of performing arts.

Plan of Action

The policy document emphasises to adopt a selective approach for determining investment priorities. Schemes, yielding economic returns and generating social benefits, will get preference. Emphasis would be on developing backward areas having ancient monuments, places of natural beauty, festivals, arts and crafts,

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etc. Efforts would also be made to develop youth hostels to facilitate the movement of youths from different parts of India and abroad so that they are exposed to all kinds of views and ideas. This will help achieve national integration and promote international understanding.

Needs of the middle and backward sectors of the society will also be taken into consideration by providing cheap accommodation facilities like Dharamshalas, Sarais, etc. Special attention will be paid to developing social tourism to benefit the weaker sections of society.

Travel Circuit Approach

To achieve these objectives, the selected travel circuit approach would be followed and matching facilities would be provided. The development of tourist infrastructure will thus be taken up based on this concept in a five to ten year perspective.

Marketing Strategy

The section dealing with market strategy in the policy document suggests the need to develop tourist traffic from neighbouring countries. Highlighting the need to explore new markets, the strategy suggests the development of tourist traffic from West Asia and North African countries on the ground that people in those countries are favourably inclined towards India. It further suggests to develop infrastructure at Buddhist centres with a view to attracting larger number of Buddhist travellers, especially from the Far East.

Conservation and Development

A major consideration of tourism development is to preserve our cultural and natural heritage which constitutes the major tourism resource of the country. The policy on tourism, therefore, emphasises the need to maintain a judicious balance between conservation and development by educating the people in appreciating their rich heritage and eliciting their cooperation in preserving and protecting it.

Tourism—A Common Endeavour

Tourism being an inter-disciplinary subject cannot remain the responsibility of any single agency. It has to be a common endeavour of all the agencies vitally concerned with its development at Centre and State levels, of public sector undertakings and the private sector.

The broad divisions of responsibility, as per the policy document, between Central and the State Government continue to be on the basis that, by and large, the schemes to promote "international tourism will be mainly the responsibility of Central Sector, and that of domestic tourism primarily of the State Sector, the Centre would play a coordinating role supplementing the State effort wherever necessary. This combined effort will be directed towards

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achieving a comprehensive, well-rounded and integrated development enabling tourism to make a positive and effective contribution to the economic growth of the country."

Due inducement would be provided to the private sector to play a more dynamic role in the development and promotion of tourism. Given the financial constraints of the Centre and States, private sector will have to play a leading role in this vital foreign exchange earning industry. That the role of private sector has been duly recognised is evident from the fact that it was also associated with the drafting of the tourism component of the Seventh Plan.[20]

Answering a question in Lok Sabha on December 2, 1983, the then Minister of State for Tourism had told the House that the Government's Tourism Policy laid down guidelines and gave a sense of direction to the development and marketing of tourism, both international and domestic.[21]

MINISTRY OF CIVIL AVIATION AND TOURISM

The Ministry of Civil Aviation and Tourism is now under the independent charge of a Minister of State for Civil Aviation and Tourism. It comprises two departments, i.e. Department of Civil Aviation and Department of Tourism.

The major activities of the Department of Tourism (DOT) fall under the following broad heads:

(a) Promotion and publicity at home and abroad with the object of promoting travel to and within India;
(b) Compilation, collection and dissemination of tourist information in India and abroad and attending to enquiries from international tourists, and travel agents, airlines, steamship companies and hotels;
(c) Facilitation work, such as simplification of frontier formalities in respect of international tourists;
(d) Cooperation with international travel and tourist organisations at Government and non-Government levels;
(e) Development of tourist facilities and infrastructure at places of interest to international and domestic tourists;
(f) Regulation of activities of the various segments of the travel trade, such as hotels, travel agents, tour operators, wild life outfitters, guides, tourist car operators and shop-keepers catering to tourists' needs; and
(g) Compilation of statistics, and conducting and commissioning market research and surveys.[22]

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[20] *The Hindustan Times*, March 4, 1984.
[21] See *L. S. Deb.*, December 2, 1983, cc. 6–8.
[22] *Annual Report*, 1988–89, *op. cit.*, p. 15.

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Indian Tourism Development Corporation (ITDC)

India Tourism Development Corporation, a Public Sector Undertaking established in October 1966, has been in operation for 22 years. It has been one of the prime movers in the progressive development and expansion of India's tourist infrastructure. Its main objective of providing an impetus to tourism was to be realised by providing (i) accommodation for the purpose of boarding, lodging and stay of tourists; (ii) for establishment and management of transport units, travel and transport counters; (iii) tourist publicity materials for giving publicity to, and for developing tourism; (iv) entertainment by way of organising cultural shows, dances, drama, sound and light shows; and (v) facilities to tourists through the establishment of duty-free shops, emporia, etc. for articles of tourist interest. ITDC has been given a major role in providing hotel accommodation.[23]

Hotel Management and Foodcraft Institutes

Under the Scheme for Hotel Management and Catering Technology training, 12 Institutes of Hotel Management, Catering Technology and Applied Nutrition and 12 Foodcraft Institutes have been set up at various places in the country. These Institutes conduct courses in the fundamentals of Hotel Management, Food Management and Catering Technology for supervisory/management level staff and at Craftsman level in specific trades such as Cookery, Bakery and Confectionary, Restaurant and Counter Service, Housekeeping, Food Preservation, etc.

The National Council for Hotel Management and Catering Technology located in New Delhi acts as an apex body to coordinate the academic activities of the Institutes of Hotel Management and Foodcraft Institutes to ensure uniformity in academic standards and procedure for selection and admission of candidates for various courses conducted by the Institutes. It also affiliates the existing Institutes of Hotel Management and Foodcraft Institutes, conduct examinations, prescribe common syllabi and award Diplomas and Certificates in due course.[24]

Indian Institutes of Tourism and Travel Management (IITTM)

With a view to providing a certain degree of professionalism to the personnel dealing with tourism industry, it had been decided that the long pending issue of setting up a national level high powered Tourism and Travel Management Institution should be brought into being. Consequently, the Indian Institute of Tourism and Travel Management was set up in 1983 as a registered Society.

The Institute while still continuing to remain in phase I of development, as sanctioned by the Ministry of Tourism, successfully undertook major initiatives

[23] L. C. Mahajan, *op. cit.*, p. 4.
[24] Department of Tourism, *Annual Report*, 1986-87, p. 4.

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for developing human resources required for the tourism industry. During the year 1988–89, the Institute launched two Postgraduate Diploma Programmes on Tourism Management, one consisting of a series of six intensive Management Development Programmes conducted on the Open University pattern and the other a regular one-year Diploma course in collaboration with the University of Bilaspur. Under the novel concept of Management Development Programmes, the Institute awarded certificates of proficiency to the participants qualifying in the individual Management Development Programmes. The scheme postulates award of Certificate of Tourism Management (CTM) to the participants who qualify in three Management Development Programmes. A new landmark was set up during 1988–89 on completing three such programmes and IITTM would award its first ever Certificate of Tourism Management. The scheme also envisages the award of a Diploma in Tourism Management (DTM) to candidates qualifying five Management Development Programmes.

The Institute has designed a unique concept of Video Lecture Series, which has been commended by the WTO and Pacific Asia Travel Association. It has developed a comprehensive programme of providing Language Training Courses at grassroot level to supervisory officials and Tourist Guides.[25]

PROMOTION OF TOURISM

India now has a "Tourism Policy" that has gone into a detailed study of the importance of tourism, its parameters and development programmes backed by an aggressive plan of action for its promotion in the international market. There has been a quantum jump in the exposure of India as a country and of things Indian.

Tourism in India can be divided into international, regional and domestic tourism. In the past, emphasis on international tourism had an impact mainly in Europe and North America accounting for bulk tourist arrivals in India. Recently, however, the Middle East, Far East and Australia have joined the list of major tourist generating countries. There are plans to open offices in Cairo, Mexico, Sri Lanka and Sharjah to add to existing tourist offices abroad. Regional tourism has also gained importance with India becoming a holiday as well as business destination for neighbouring countries. Both in terms of conference facilities and in terms of pre- and post-conference tours, India is getting known as a conference and convention centre.

The steps taken by the Government to increase the foreign tourist traffic to India include vigorous publicity campaigns with emphasis on consumer advertising, stepping up of public relations with overseas media agencies, tour operators and travel agencies, promotion of special interest tourism and marketing India in segments, launching of off-season schemes and promotional schemes, development of infrastructural facilities and transport systems,

[25] *Annual Report*, 1988–89, *op. cit.*, pp. 77–79.

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including charter traffic, etc.[26] Steps are also being taken to promote India as an all-weather destination by offering off-season packages, etc. The continental dimension and the various attractions in different parts of the country are being emphasised in the overseas publicity programmes to project India as an all-weather destination. The statistical information system, particularly the tabulation of foreign tourist arrivals data has been fully computerised. Efforts are being made for the computerisation of other activities like tourist information.[27]

Domestic tourism plays a very big role in the national objective of promoting social and cultural cohesion and national integration. Its contribution to the generation of employment is also very high. The seasonal pattern of domestic tourism differs from that of foreign tourism.

The Department of Tourism is laying greater emphasis on promoting domestic tourism with emphasis on the creation of tourism infrastructure in all the States/Union territories. Under this policy, Forest Lodges, *Yatri Niwases*, Tourist Lodges, way-side facilities and *Yatrikas* are being constructed in various parts of the country to provide accommodation to budget-minded tourists. In addition, assistance is also being provided for purchase of vehicles/elephants for viewing wild life sanctuaries, for purchase of trekking equipment as well as for construction of trekkers' huts, etc. The Department is also assisting various States in organising major fairs and festivals. All these activities promote inter-state tourism.

Various States/Union territories organise package tours within and outside their respective States/UTs for the promotion of inter-state tourist traffic.[28]

Buddhist Circuit

The Tourism Ministry has chalked out a Rs. 200-crore action plan for the development of Buddhist pilgrimage centres spread over Bihar and Uttar Pradesh. This is a part of the Government's strategy to develop new sectors for the growth of tourism. It is also proposed to bring Ladakh in eastern Kashmir, Dharamshala in Himachal Pradesh and Nagarjunasagar in Andhra Pradesh within the circuit. Recently, India was offered a soft loan of Rs. 95 crore Japanese assistance for Buddhist Heritage sites. Sites associated with the life of Lord Buddha are situated in areas of Bihar and UP. Under this scheme, the Government of India and State Governments would undertake landscaping of the area, strengthen the road, rail and communications system, build way side amenities and hotels to suit both the pilgrim traffic and also the upmarket traffic from Japan, Thailand, etc.[29]

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[26] L. S. Deb., February 27, 1987. Also see Appendix 14.3 showing foreign tourist arrivals in India from 1970 to 1988.

[27] *Annual Report*, 1988–89, *op. cit.*, p. 38.

[28] L. S. Deb., February 27, 1987.

[29] *Annual Report*, 1988–89, *op. cit.*, p. 13.

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Promotion of Island and Beach Tourism

The Ministry of Civil Aviation and Tourism has been declared as the nodal Ministry for development of tourism to the Andaman and Nicobar Islands and Lakshadweep. Accordingly, the Ministry has drawn an Action Plan for development of tourism infrastructure and other facilities to promote tourism to the islands.

The Action Plan for Lakshadweep comprises the construction of an airstrip at Agatti and introduction of air service to the islands, setting up a tourist resort at Bangaram Island, improving accommodation in the other islands of Kavarathi and Kadmat, producing publicity material, etc. and lays emphasis on assisting the Lakshadweep Administration with water sports equipment and setting up of a branch of the Water Sports Institute. The Action Plan has been largely implemented. The airport at Agatti has been completed and is fully operational. Vayudoot is operating an Avro service three times a week between Cochin and Agatti. The island of Bangaram has been developed as a resort and has become functional with 24 rooms. The water sports facilities are also available now.

The Action Plan for the Andamans also envisages the expansion of the Port Blair airport, improving the skills of local manpower, publicity for the islands etc. However, the progress of the implementation of the Action Plan with regard to the Andaman and Nicobar islands has been limited.[30] A few more proposals for the development of beach tourism in other places are under consideration. Beach tourism has also been given a fillip with the development of islands and beach resorts. These are developed as independent destinations. It is also being ensured that the beaches remain clean and unspoilt. The natural beauty of the islands with underwater coral life, wide and sandy beaches and creeks can become a paradise for tourists. Steps are also being taken to develop new resorts in virgin beaches in Andhra Pradesh, Orissa and Tamil Nadu. In other areas, pleasure cruises of lakes and rivers are being popularised. An Institute of Water Sports is being set up at Goa. It would be the largest in Asia and cost more than Rs. 1 crore.

Winter Sports

The development of winter sports is being taken up in a big way. It would receive a big boost with the commissioning of the new building of the Skiing Institute and a centrally-heated hotel, by the ITDC at Gulmarg in Kashmir and the installation of cable car between Gulmarg and Apharwat. A similar Skiing Institute is being developed at Auli in Himachal Pradesh where a ropeway at an estimated cost of Rs. 2.3 crore is planned.

Promoting Youth Travel

Several youth hostels have been set up to facilitate student travel, opening wide horizons for young people. Investment in these hostels is looked upon as social

[30] *Annual Report*, 1988–89, *op. cit.*, pp 56–57, 58.

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investment. Youth travel is an important activity in the development of tourism. It widens one's horizons, makes the youth aware of our cultural diversity, inculcates tolerance and fosters national integration. The Government has recognised the importance of youth energy and channelising them towards creative and purposeful pursuits. At present there are several youth hostels built by the Ministry in different states. It is proposed to expand the network of these hostels in the Seventh Plan to promote youth travel, both India's and from overseas, in close collaboration with Youth Hostel Association of India which is affiliated to the International Youth Hostel Association.

Cultural Tourism

India's cultural attractions are unique and have the potential of drawing a large number of tourists from all over the world. Master plans have already been prepared for the development of tourist complexes/facilities at four centres including Fatehpur Sikri, Kushinagar, Brajbhoomi and Sravasti which have been designated as national heritage projects.

In the Seventh Plan, in addition to the continuing schemes such as the construction of Tourist Complexes at Fatehpur Sikri and Sravasti, the Department of Tourism (DOT) also proposes to take up development of facilities at the places for which Master Plans have been prepared.

A number of projects have been sanctioned which include provision of accommodation at Nalanda, Rajgir, Mathura, Chamundadevi, Gopalgunj, Chintpurni, Hathkoti, Jaisalmer, Ropar, Sirhind, Twang (AP), Moreh and Tamenglong (Manipur), and Garhwal Himalayas.[31]

Wildlife Tourism

There is also considerable potential for increasing wildlife tourism to India. The number of national parks and wildlife sanctuaries in India has now gone up to 47 and 211 respectively. Of the national parks, over 15 are reserved under Project Tiger. The Seventh Plan includes augmentation of accommodation and other facilities at the national parks and wildlife sanctuaries.

Adventure Tourism

Trekking, in particular, holds out great potential in terms of numbers. It will be necessary to bring together the main Hill States as well as the airlines, Indian Mountaineering Foundation and the Youth Hostel Association of India for the formulation of a coordinated programme of promotion of trekking. During the Seventh Plan a number of measures are taken up for creating infrastructural facilities for trekking, mountaineering, river rafting, etc. The continuing projects under the schemes are provision of trekker's huts and Alpine huts.[32]

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[31] *Annual Report*, *op. cit.*, p. 35.

[32] *Annual Report*, 1988–89, *op. cit.*, p. 40.

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Social Tourism

Under Social Tourism, *Yatrikas* are constructed for pilgrimage tourists by the *Bharatiya Yatri Avas Vikas Samiti*, a registered society, set up in 1978 by the Ministry of Tourism. This is to enable persons belonging to middle and low-income groups to travel to places of religious and tourist interest. The Samiti is provided grant-in-aid to the extent of 90 per cent of the cost of construction of *Yatrikas*. The balance is raised through donations. *Yatrikas* have already been set up at Chitrakoot, Amarkantak, Brindaban, Kampil and Bidar. Work is in progress on additional *Yatrika* Projects at Karaikal (Pondicherry), Puri (Orissa) and Nainadevi (Himachal Pradesh). Under the Seventh Plan a number of new *Yatrikas/dharamshalas/musafirkhanas* are to be constructed at different religious places by the Samiti through Central grants and local donations. A new scheme is taken up by the Ministry for setting up inexpensive accommodation, i.e. *Yatri Niwases*, at important places of tourist interest to meet the requirements of middle income tourists, both international and domestic. During the last four years (including 1988–89), 27 *Yatri Niwases* have been sanctioned and the funds released.[33]

Foreign Exchange Earnings

As per the latest provisional estimates of the Reserve Bank of India, the country had accumulated foreign exchange to the tune of Rs. 1300 crore in 1984–85 through international tourism which was creditable considering the stagnation in the tourist arrivals during the eighties.[34] It is interesting to note that while India's exports altogether constituted roughly 0.5 per cent of the total world exports[35] during 1984–85, the share of India's travel receipts was more than 1 per cent of the world total during the same period. Today, tourism has emerged as one of the top foreign exchange earning industries of the country. The contribution of this sector during 1987–88 was Rs. 1890 crore as against Rs. 1780 crore during 1986–87. The projected foreign exchange earning during 1988–89 is above Rs. 2000 crore.[36]

Hotel Accommodation

The Department of Tourism under the Ministry of Civil Aviation and Tourism approves hotels from the point of view of their suitability for foreign tourists. By the end of 1988, there were 565 hotels with 36,369 rooms on the approved list of the Department. Besides, 16,568 additional rooms would be added when 245 new hotel projects which have been approved by the Department are completed.[37]

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[33] *Ibid.*, p. 39.
[34] Government of India, Ministry of Finance, *Economic Survey*, 1985–86.
[35] Based on the data published in World Tourism Organisations' Tourism Compendium, 1985 (Information received from the Ministry of Tourism.)
[36] *Annual Report*, 1988–89, *op. cit.*, p. 37.
[37] *Ibid.*, p. 51.

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Employment Generation

In India, the effective utilisation of the country's immense tourist potential will give a strong stimulus to travel, transport, hotels, sports and several other related activities, all of which will have a salutary effect in accelerating the growth of the economy and thereby raising employment potential. As per the estimates worked out by the Planning Commission, the total employment in the tourism sector, including *indirect* employment, was 4.5 million in the year 1980. The Indian Institute of Public opinion had estimated that there were 1.3 million people *directly* engaged in the tourist industry.[38]

Attracting Tourists

Tourism is a highly competitive business and India is among 125 or so countries trying to attract tourists. Apart from being far away from tourism generating markets, India has also had to work hard to correct the erroneous image of a country seething with poverty and hunger. The vastness of India and the wide variety of its tourist attractions are another major challenge to the selling and marketing of this country. India has also had to gear itself to the changing trends in tourist preferences. Although India continues to be largely a centre for cultural tourism, it has had to build the infrastructure for the new requirements of leisure travel, beach holidays, wild life tours and special interest tours like skiing, trekking, fishing, photography, yoga and even mystique tours, not to speak of the multi-million dollar convention tourism and incentive tours. In other words, from a situation in the 1950's when tourism to India was confined to the golden triangle of Delhi, Jaipur and Agra virtually the whole country is now open to tourism, from the Himalayas in the north to the Gir forest in the west, Kanya Kumari in the south and Kaziranga in the North East.

Government of India is providing many facilities to the foreign tourists so that they are attracted to India. The salient features of the facilities being provided to them are listed below:

(i) In order to cater to the varied needs of the tourists both foreign as well as Indian, the Department of Tourism produces tourist publicity literature and other allied material such as films, audio visuals, display stands, video tapes, etc.

(ii) The overseas offices of the Ministry of Civil Aviation and Tourism are able to undertake electronic media advertising besides advertising in print due to the enhanced allocation now being made from the beginning of the Seventh Five-Year Plan.

(iii) Since domestic tourism is the base on which foreign tourism develops, adequate attention is being paid by the Central Government to popularise the lesser and more affordable tourist spots of India. A campaign-

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[38] Kunal Chattopadhaya: "Tourism as Industry—A Role to Play in Economic Growth", *Business Standard*, Calcutta, August 7, 1984; and Information received from the Ministry of Tourism.

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under the title "Discover India, Discover Yourself—in India You Will See the World" has been launched.

Lately the Department of Tourism has launched a major campaign on "Tourism Environment Awareness" in the latter half of 1988–89. The theme of the campaign is "we can and we will keep India beautiful". It has also launched a "Hilliday Campaign" to promote lesser known hill resorts.

(iv) Concerted efforts are being made to develop tourist infrastructure at tourist centres falling along identified travel circuits within the country by pooling available resources in the Central, State and Private Sectors.

(v) Inexpensive, clean and comfortable accommodation is being provided for the budget-minded tourists through the construction of *Yatri Niwas*/Youth Hostels, etc.

(vi) In order to remove congestion at international airports causing delays in quick clearance of tourists, new terminal buildings for international traffic at Bombay and Delhi Airports have been opened.

(vii) Additional facilities for skiing, water sports, trekking, etc. are being developed to cater to the tourists interested in recreational activities.

(viii) In order to meet the requirement of tourists for airconditioned cars, etc., the Ministry has a scheme of making available second-hand imported cars to the tourist trade at reserved prices.

(ix) Indian Airlines offers certain concessions to the tourists:

(a) 'Discover India' tickets to all foreign nationals and Indians residing outside India for US $ 375 for 15 days' unlimited travel on the domestic sectors of Indian Airlines paying in foreign exchange.

(b) 'Youth Fares'. Persons between the ages of 12–30 years and residing abroad are eligible to a concession of 20 per cent on the normal US dollar fares on domestic sectors of Indian Airlines provided payment is made in foreign exchange.

(x) Indian Railways offer Ind-Rail Pass Tickets valid from 7 to 90 days unrestricted travel on Indian Railways for foreign nationals and Indians residing abroad against payment in foreign exchange.

(xi) Indian Railways, in collaboration with Rajasthan State Tourism Development Corporation have embarked upon a new project—'Palace on Wheels' consisting of 96 berths in 12 saloons belonging to former princely States and 28 berths in two modified first class bogies in order to promote tourism by rail.

(xii) To create more amenities/facilities for tourists, Airports Advisory. Committee have been set up at various airports in India.

(xiii) Certain relaxations have also been made in customs clearance of tourist baggage at the instance of the Department by introducing a two-channel system at the international airports, for quick customs clearance.[39]

[39] Based on information received from Department of Tourism. Also see *R. S. Deb.*, February 23, 1982, cc. 168–70 and *Annual Report*, 1988–89, p. 19.

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CONCLUSION

There is unlimited potential for further tourism development, because few countries in the world have as much to offer by way of a single tourist destination. Every State now has a fully equipped tourism infrastructure with plans for growth. The Department has also identified specific travel circuits in each State making tourist activity a systematic venture. A dynamic and pragmatic approach is now being adopted to identify new markets, and for tapping tourist traffic by offering complete package of services to overseas tour operators. Simultaneously, select destinations are being developed for incentive markets and major programmes are being undertaken for product modernisation. Today it can be said that tourism has come of age. In the last few years there has been an impressive growth in the accommodation sector. The next decade will be one of endeavour to convert this vast potential of tourism into reality—through well-planned, well-defined and fully integrated national programmes for the development of tourism. It also needs to be remembered that tourism is a potent instrument for achieving national integration and earning international goodwill and understanding.

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APPENDIX 14.1

Total Amount Spent by Government on the Department of Tourism, and ITDC for Development of Tourism under Different Plans

(Rs. in lakhs)

Plan	*Department of Tourism*	*ITDC*
1. Second Plan (1956–61)	86,855	—
2. Third Plan (1961–66)	145.12	—
3. Three Annual Plans (1966–67, 1967–68, 1968–69)	103.69	—
4. Fourth Plan (1969–74)	1279.84	—
5. Fifth Plan (1974–78)	1435.09	1157.31
6. 1978–79 and 1979–80	352.20	1278.84
7. Sixth Plan (1980–85)	2500.00	—
8. Seventh Plan allocation (1985–90)	6868.00	4000.00

SOURCE: P. I. B. Backgrounder on *Growth of Tourism in India*, June 23, 1983; and information received from the Department of Tourism.

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APPENDIX 14.2

Tourism Policy

(Presented by the Minister for Tourism in the Lok Sabha and the Rajya Sabha on November 3, 1982.)

Dimensions of Tourism

1. Tourism has become a global phenomenon in the last 30 years. Better and faster means of communications have resulted in a massive movement of people throughout the world drawing them closer through experiencing and appreciating one another's culture and life-style. To give an idea of the dimensions of world travel, in 1981 there were about 290 million world travellers who spent US $ 106 billion (Rs. 84,800 crore). In India alone about 5 million people, excluding city commuters, are carried daily by the railways over their vast networks indicating the strength of domestic travel movement within the country.

Parameters of Tourism

2. The parameters of tourism are wide and far-reaching. From a small beginning of individuals, travelling alone in search of adventure, knowledge, trade and pilgrimage, the mass movement of people today all over the world has given rise to a highly sophisticated, multi-disciplinary industry—tourism—to develop and promote tourist activities, to service the tourist facilities so as to ensure visitor—satisfaction and thus generate more travel. Because tourism promotes exchange of ideas and views and facilitates interaction of people and their culture, it can be a potent instrument for achieving national integration, better international understanding and ultimately peaceful co-existence for the people of the world.

3.1 Despite its world-wide operations, tourism can function in the smallest of settings as effectively and efficiently as in wide-ranging, multi-national operations. It has thus the flexibility of adjustments to situations which few industries possess. Tourism can thus be an individual endeavour or it can employ thousands in a single operation. It can be small enterprise or a multi-million project. Tourism is thus both labour-intensive and capital-intensive activity. In economic terms, tourism is a major source of foreign exchange earnings for many countries. It can help correct adverse trade balances and regional imbalances, create employment opportunities and give a direct stimulus to the socio-economic development of backward areas in a country.

3.2 However, there are pitfalls well. Unregulated tourism can cause many problems, unbalanced social change and economic development, social tensions and environmental pollution, distortion of life-styles and cultural decay—indeed the destruction of the very entity on which tourism is built.

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Stages of Tourism Development

4.1 Tourism development in India has passed through many stages. At Government level, the development of tourist facilities was taken up in a planned manner from 1956 coinciding with the Second Five-Year Plan. The developmental approach has evolved from isolated planning of single unit facilities in the Second and Third Five-Year Plans to integrated development in the Fourth Plan (Gulmarg and Kovalam projects), and thereon to integrated area development in the Fifth and Sixth Plans.

4.2 The many attractions of India hold virtually an unlimited potential for tourism development. The endeavour therefore will be to convert this vast potential into reality through well-planned, well-defined and fully integrated national programmes of tourism development.

4.3 The performance in the field of tourism over the past 30 years has been quite impressive. In 1951, 25 million world travellers crossed national frontiers to visit other countries as tourists. Of these, India received 16,829 or only 0.066 per cent. In 1981 while the world tourist movement was estimated at 290 million, India received 8.53 lakh (excluding 4.27 lakh arrivals from Pakistan and Bangladesh) or 0.44 per cent. The estimated foreign exchange earnings of India from tourism in 1951 were Rs. 7.7 crore. In 1981 these were estimated at Rs. 702 crore. Hardly any other sector of the economy has recorded such a consistently notable performance.

4.4 In 1951 there were only a few hotels primarily in the metropolitan cities and at hill stations which could cater to the needs of the tourists. There were only a handful of travel agencies. Today there are 371 Government of India approved hotels with 23,620 rooms and 185 approved travel agencies throughout the country.

Objectives

5. The Government's objectives thus are to so develop tourism that:

(i) It becomes a unifying force nationally and internationally fostering better understanding through travel.

(ii) It helps to preserve, retain and enrich our world-view and life-style, our cultural expressions and heritage in all its manifestations. The prosperity that tourism brings must cause accretion and strength rather than damage to our social and cultural values and depletion of our natural resources. In tourism, India must present itself on its own terms—not as an echo or imitation of other countries, other cultures and other life-styles.

(iii) It brings socio-economic benefits to the community and the State in terms of employment opportunities, income generation, revenue generation for the States, foreign exchange earnings and, in general, causes human-habitat improvement.

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(iv) It gives a direction and opportunity to the youth of the country both through international and domestic tourism to understand the aspirations and viewpoints of others and thus to bring about a greater national integration and cohesion.

(v) It also offers opportunities to the youth of the country not only for employment but also for taking up activities of nation building character like sports, adventure and the like. Thus as a programme for the moulding of the youth of the country, tourism is of inestimable value.

6.1 *Domestic Tourism* Domestic tourists travelling within their country from the bulk of world tourist traffic. While domestic tourist statistics are not available at present on an all India basis, the volume of passenger traffic carried by our railways and the road transportation system is indicative of the enormous size of domestic tourism in India. For the large number of our people who travel on pilgrimage or as tourists, facilities provided are minimal. It will therefore be our endeavour to substantially improve and expand facilities for domestic tourists.

6.2 *International Tourism* Recognising the importance of international tourism in earning foreign exchange and thereby making a major contribution to the national economy as well as in creating international goodwill and understanding, high priority will be accorded to the development of international tourism.

6.3.1 *Cultural Tourism* Various surveys and studies have confirmed that the biggest element in attracting international tourists to India is our historical and archaeological monuments. Although the maintenance and upkeep of the monuments is the responsibility of the Archaeological Survey of India and the State Departments of Archaeology, it is proposed to provide adequate tourist facilities at the major centres of cultural interest in a planned manner in coordination with the other concerned agencies including the State Governments.*

6.3.2 *Tourism—A Common Endeavour* 7. While broadly the promotion of international tourism will be mainly the responsibility of the Central Sector, and that of domestic tourism primarily of the State Sector, the Centre would play a coordinating role supplementing the State effort wherever necessary. Further, tourism development cannot solely be the responsibility of the Government. It has to be a common endeavour of all the agencies vitally concerned with its development at Central and State levels, of public sector undertakings and the private sector, of airlines, railways and communications systems, municipal and local bodies, and educational and cultural organisations. This combined effort will be directed towards achieving a comprehensive, well-

* Without jettisoning our efforts in promotion of tourism through culture, the Government has also taken a conscious decision to promote and develop tourism, both international and domestic, through adventure tourism and leisure activities. (Based on material provided by the Department of Tourism)

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rounded and integrated development enabling tourism to make a positive and effective contribution to the economic growth of the country.

Impact of Tourism

8.1 While the overall impact of tourism on a national scale may be difficult to measure as it is a pervasive activity rather than a tangible commodity, it can be more easily assessed in specific situations where the parameters can be more precisely defined. For example, the cost-benefit study of the Gulmarg Winter Sports Project has shown that the net social benefit accruing from winter sports development as envisaged would be around Rs. 600 crore over a period of 25 to 30 years, the multiplier effect being 3.3. In a similar study of the Kovalam Beach Resort Project the multiplier effect was found to be 2.5. In the field of international tourism foreign exchange earned from tourism in 1979–80 showed an increase of 20.4 per cent as against an increase of 12.8 per cent growth rate in the commodity exports in India. The Committee on Export Strategy 1980's* in its Report mention that while India's exports altogether constituted 0.42 per cent of the total world exports in 1979. India's share of the world tourism receipts was 0.58 per cent. This despite the fact that 1979 was one of the poorest years for tourism to India. These figures were as follows:— 0.58 per cent in 1979; 0.64 per cent in 1980 and 0.76 per cent in 1981. The fact thus remains that given the opportunity tourism can make an effective contribution towards reducing the country's deficits in international trade. Equally, it can bring sizeable socio-economic benefits to those regions of the country which are rich in tourism potential.

8.2 Increasing attention will be given to Regional Tourism i.e. the tourism among the countries of the South Asian Region (comprising the Indian sub-continent) extending the scope to over Afghanistan, Iran and the Republic of Maldives. Through promotion of tourism in the region, tourism will attempt to play its role in bringing about greater understanding among the countries of the region and consciousness of the oneness of the region.

Plan of Action

9.1 Thus, in order to maximise the benefits of tourism it will be necessary to have a selective approach for determining investment priorities. Rather than spread the resources thin and thereby dilute the impact of tourism. Priority will be given to schemes which yield economic returns and generate social benefits. The development of tourist infrastructure will thus be taken up based on the "travel circuit" concept in a 5 to 10 year perspective. This will enable intensive development of selected centres, dispel the tendency to concentrate in a few urban centres, and encourage the diversification of tourist attractions particularly

* This Committee was constituted by the Government of India, Ministry of Commerce, Civil Supplies and Cooperation (Department of Commerce) *vide* Resolution No. 4(23)-EPL dated June 28, 1979. Final Report was submitted in December 1980.

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in opening up economically backward areas which hold many tourist attractions such as archaeological and historical monuments, places of natural beauty, festivals, arts and crafts.

9.1.2 To involve the youth of the country in national integration and make tourism a vehicle for achieving this objective youth hostel activity will be given significant importance in the plan of action. This will facilitate the youth from different parts of the country exchanging views and ideas, getting themselves exposed to the various parts of the country and thus bringing about greater understanding between youths of all parts of the country, apart from catalysing international understanding through the youth movement. The existing modest network of youth hostels set up for the purpose will be expanded and the movement strengthened substantially.

9.1.3 The policy on tourism will take cognizance of the need to under-score the fact that tourism facilities for the lower middle class and the poorer sections of the society for getting to know about other parts of the country through travel require to be augmented and towards this purpose, and with particular reference to pilgrimage tourism, cheap accommodation is proposed to be provided through Dharamshalas, Sarais etc. making use of suitable organisations like the *Bhartiya Yatri Avas Vikas Samiti* and the like to put up such facilities.

9.2 Marketing strategy will be to broaden the tourist base in existing markets, explore new tourist markets, and promote and facilitate intra-regional travel, particularly from neighbouring countries. A dynamic and pragmatic approach will be adopted in identifying regions from where tourists traffic to India has growing potentiality as for instance, West Asian as well as North African countries where as a result of oil there is a great boom and prosperity resulting in people in these countries desiring to go on pleasure tours abroad. The WANA countries have a predilection towards India because of its close link with West Asia and North Africa from historical times. Special emphasis has to be given for travel from these countries to India. The infrastructure will be so developed as to cater to the tastes of the tourists from these regions. Similarly the infrastructure at Buddhist centres is being developed as for instance, through a series of Buddhist oriented hotels with a view to attracting large scale Buddhist traffic through charter as well as by the normal services to India making India a Buddhist destination. With the vast Buddhist population in the Far East, there is considerable potentiality for traffic to India from these countries. The assistance of the Railway Ministry is being sought for operating special charter trains to cover the Buddhist centres and also supplement accommodation in hotels through these special trains which would be self-contained mobile hotels, as it were.

9.3 Special attention will be paid to developing social tourism to benefit the weaker sections of society.

9.4 Manpower development and training will be given due weightage to ensure efficient service and effective management of tourist facilities for maximising returns on investments made.

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9.5.1 To attract private sector investment in building up the tourist infrastructure and for augmenting various services to keep pace with the tourist demand, it will be necessary to extend fiscal and other incentives to the various segments of the tourism industry on par with those given to other export-oriented industries.

9.5.2 Towards this purpose every endeavour will be made to secure fiscal and other incentives from the concerned Ministries of Government in order to make investment in the tourist industry worthwhile. In this process and endeavour will also be made to highlight the fact that in the context of the country needing substantial foreign exchange for its developmental activities, tourism industry will constitute a major agency/industry for the acquisition of foreign exchange of a sizeable quantum not incomparable to, and in due course expect to exceed, the contribution of foreign exchange made by the engineering goods industries, Handloom and Handicraft industries and such other major foreign exchange earning export-oriented industries.

9.5.3 In this context an endeavour will also have to be made to obtain for tourism industry the status of an export-oriented industry.

Conservation and Development

10. A major consideration of tourism development will be to preserve our cultural and natural heritage which constitutes the major tourism resources of the country. Despoliation of the natural environment of archaeological monuments, beaches, mountains and places of natural beauty, disruption in the ecosystems of environmentally sensitive regions through haphazard growth of tourist facilities and injecting tourist inflow beyond the absorption capacity of the place/region, destruction of traditions in the culturally sensitive areas, clandestine selling of antiques and vandalism—these are some of the negative aspects of tourism which can lead to the depletion of tourism resources of the country. Similarly the environmental aspects of industrial, urban and other types of development, whether in the immediate vicinity of archaeological sites and places of natural beauty or in their peripheral areas are a matter of deep concern as they can adversely affect the development of tourism. A judicious balance therefore needs to be maintained between conservation and development. Appropriate measures therefore would be necessary to educate the people in appreciating their rich heritage and eliciting their cooperation in preserving and protecting it.

A New Ethos and Value

11. India has a long tradition of social and cultural values, and possesses a spiritual quality that has come down unbroken from time immemorial. It is this quintessence of our culture that tourism should be able to project so as to give to our people a sense of unity and identity, a broadening of their intellectual, emotional and cultural horizon and a sense of belonging and pride, and for the international traveller tourism should create a better understanding of our land,

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people and culture. The cultural, social and economic benefits of tourism that flow from this policy should give a new ethos and value to tourism, and a new sense of purpose and direction to its development and promotion.

Conclusion

12. It is our earnest hope that this policy on tourism, being presented for the first time, will find wide acceptance and will help to enrich our life and bring greater prosperity to our people in the years to come.

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APPENDIX 14.3

Foreign Tourist Arrivals in India

Year	*Number of tourist arrivals*	*Percentage change*
1970	280,821	14.8
1971	300,995	7.2
1972	342,950	13.9
1973	409,895	19.5
1974	423,161	3.2
1975	465,275	10.0
1976	533,951	14.8
1977	640,422	19.9
1978	747,995	16.8
1979	764,781	2.2
1980	800,150	4.6
1981	1279,210*	—
	(853,148)	(6.6)
1982	1288,162	0.7
	(860,178)	(0.8)
1983	1304,976	1.3
	(884,731)	(2.9)
1984	1193,752	−8.5
	(835,503)	(−5.6)
1985	1259,384	5.5
	(836,908)	(0.2)
1986	1451,076	29.1
	(1080,050)	(15.2)
1987	1484,290	—
	(1163,774)	(7.8)
1988	1584,323	—
	(1239,992)	(6.5)

* From the year 1981 onwards, tourist arrivals include nationals of Pakistan and Bangladesh also. However, tourist arrivals excluding nationals of Pakistan and Bangladesh are given in parentheses.

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APPENDIX 14.4

Foreign Exchange Earnings from Tourist/Travel Receipts[1]

Year (Jan.–Dec.)	*Estimates by Ministry of Tourism[1] (Rs. crores)*	*Percentage Change*	*Year (April–March)*	*Estimates by R.B.I (Rs. crores)*	*Percentage Change*
(1)	(2)	(3)	(4)	(5)	(6)
1973	71.1	—	1973–74	56.5	—
1974	93.2	31.1	1974–75	94.0	66.4
1975	104.2	11.8	1975–76	189.6	101.7
1976	225.0	115.8	1976–77	285.0	50.3
1977	283.0	25.8	1977–78	530.6	86.2
1978	338.0	19.4	1978–79	565.3	6.5
1979	384.0	13.6	1979–80	920.0	62.7
1980	482.0	25.5	1980–81	1166.3	26.8
1981	702.0[2]	—[3]	1981–82	1063.0	−8.8
1982	750.0[2]	6.8	1982–83	1130.6	6.3
1983	825.0	10.0	1983–84	1225.0	8.3
			1984–85	1300.0	6.1
			1985–86	1460.0	12.3
			1986–87	1780.0	—
			1987–88[4]	1890.0	—

[1] Till 1983 the Ministry of Tourism was estimating tourism receipts on the basis of per-capita expenditure of the tourists, though RBI is estimating the same as part of balance of payments compilation of India. However, as a sequel to the report of a working group appointed by RBI to look into the estimation of Tourist receipts which suggested among other things that the Ministry should rely on RBI estimates, the Ministry of Tourism has discontinued this series.

[2] Includes earnings from Pakistan and Bangladesh nationals also.

[3] Estimates under column (2) for years 1980 and 1981 are not strictly comparable and hence, no figure is shown against the year 1981 under column (3).

[4] R.S. Deb., 22.2.89, S.Q. No. 6.

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15

TRANSPORT IN INDIA

INTRODUCTION

Transport, the *de facto* barometer of economic, social and commercial progress, has transformed the entire world into one organised unit. It has immensely contributed to the evolution of civilisation. Though the demand for transport is not so fundamental in human nature as the demand for essential commodities, yet it is an indispensable part of culture, and stands out as a hallmark of civilisation. The transport industries, which ensure movement of persons and things from one place to another, have constituted one of the most important activities of man in every stage of advanced civilisation. In fact, the whole structure of industry and commerce rests on the well-laid foundation of the transport system.

In the developed countries of the West, the transport system has not only helped the growth of industry and commerce but also achieved most of the wider economic and social objectives. The Indian transportation system also contributes in significant ways to the economic and social life of the people. Transport system is a basic infrastructure for the stimulation of economic growth and also for the social progress of the nation. In India, despite the implementation of six Five-Year Plans, the transport system still finds itself in a state of inadequacy and at times in crisis. The country has not yet achieved sufficiency and self-reliance in regard to the development of transport system. The crisis in the transport system stimulates crisis in other branches of economy. Similarly, the crisis in other fields of economy reacts on the transport system.

DEVELOPMENT OF MEANS OF TRANSPORT

General

Since time immemorial, means of transport have been changing according to changed conditions and particular requirements. In the days of yore, human beings themselves transported their commodities from one place to the other. The male used to carry his weapons and the female the load of a number of commodities on her head. In those older days roads did not exist and people used to walk along tracks. With progress in trade and commerce, pack animals began to be used and people travelled in caravans. Even during that stage of economic development, roads hardly existed; but tracks were automatically made wider due to the movement of hundreds of animals together. Dogs, oxen,

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horses, camels etc. were used as beasts of burden and even today in some parts of the world their importance has not diminished.[1]

Before and After the Industrial Revolution

The transition from subsistence farming to commercial farming and the growth of manufacturing activities in towns widened the scope for the development of means of transport. Wheeled traffic began replacing the older mode of transport, which eventually could be accommodated on roads after they were technically improved. Yet, as late as the 18th century, the condition of roads in England was very unsatisfactory. It was very difficult for coaches to move smoothly on roads.

With the advent of Industrial Revolution in the European continent, rapid changes occurred in the transport system. Workers had to travel daily to and from the factories, increasing the local passenger movements by rail. At the same time, the development of industry and trade required speedy movement of goods. The four forms of transport—rail, road, water and air were developed soon for the service of man, yet the new modes of transport did not make earlier forms obsolete. The older modes of transport still continued to serve the society though on a smaller scale.[2]

Growth of Transport System in India

Before independence, the transport system, comprising mainly railways and roads, was developed primarily to provide communications with the major ports and large cities, keeping in view the administrative, strategic and trade imperatives of that time. The focus changed after independence as, along with the rehabilitation of railways and reconstruction of highways, which were damaged or neglected during World War II, concern was simultaneously shown for the first time for rebuilding the transport network and linking it with developmental needs of the economy and society. Not only were programmes and projects formulated to extend the country's rail and road network but attention was also paid to development of shipping, ports, air and other modes of transport. With the initiation of industrial development programmes, however, the main objective underlying the planning of the transport system was a systematic movement of raw materials to plant sites and of finished products to consumption centres, particularly in respect of steel, power and heavy industry. Further, the needs of inter-city and urban passenger movement were brought into focus. A proportion of investment was diverted to promotion of transport in the backward regions as a stimulus to their economic advancement.

A review of the development of transport in India shows that transport had recorded a substantial growth during the last thirty-six years (1950–51—1986–87) both in the spread of network as well as in the output of the system.

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[1] S. K. Srivastava: *Economics of Transport*, Delhi, S. Chand and Co. 1971, p. 10.
[2] *Ibid.*

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Railways recorded a growth rate of 4.3 per cent per annum in freight traffic and 3.7 per cent per annum in passenger traffic. The traffic at major ports increased at the rate of 5.2 per cent per annum. Domestic airlines passenger traffic recorded a growth rate of 10.5 per cent per annum. Road transport fleet increased by 6.8 per cent per annum in respect of trucks and 5.4 per cent in respect of buses. The road network expanded at an annual rate of 4.5 per cent. Shipping tonnage increased at the rate of 11.0 per cent and coastal shipping at 1.4 per cent per annum.[3]

RAILWAYS

Railways are the principal carriers of men and material and have a major role to play in improving the economy of the nation. Besides, Railways truly inculcate among the people the spirit and bonds of national integration. It is the main source of supply of essential commodities by transport through the length and breadth of the country and also the main force to bring economic well being for all citizens of the country. Ever since the invention of steam engines, Railways have played an important role in industrialisation and development of any nation. All developed and developing countries in the initial stages of their development and industrialisation had heavily relied on Railways for movement of goods and the pace would not have been that rapid if the Railways had not provided basic infrastructure needed for it. In short, railways have played a catalytic role in economic development of advanced countries and in a developing country like India, the contribution has been really great having its network covering very remote areas in the country. Railways are, in a planned way, improving their system by way of electrifying more and more routes, faster movement of passenger carrying trains and introduction of heavy haul trains to carry higher quantum of traffic.[4]

Indian Railways

Indian Railways are the main artery of the nation's inland transport extending over 61813 route kilometres (in 1986–87) of which 7474 route kilometres or about 12 per cent are electrified. With an investment of about Rs. 10,373 crore and a regular staff strength of about 1.61 million the Indian Railways are Asia's largest and the world's second largest State owned Railways System under a single management.

Planned Development

Since 1950–51, Indian Railways have implemented Six Five-Year Development Plans apart from Annual Plan and are now in the fourth year of the Seventh

[3] Government of India, Planning Commission: *The Seventh Five-Year Plan* (1985–90), p. 461 and information obtained from the Ministry of Surface Transport. Also see Appendix 15.1 for the growth of transport system during 1950–51 to 1986–87.

[4] Based on information received from the Ministry of Railways.

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Five-Year Plan (1985–90). The aims and achievements of Indian Railways during various plan periods have been as under:

First Five-Year Plan (1951–56)

It was essentially a rehabilitation, modernisation plan. This had become necessary as the Second World War had run down the system badly and there were heavy arrears of over-aged assets which needed to be replaced. In this programme a little more than half of the total outlay was on Railways in order to equip the Railways with the minimum equipment and installations necessary to carry the additional load to be placed on it as a result of development in other sectors of the economy. The First Five-Year Plan provided for an outlay of Rs. 217 crore for Railways.

Second Five-Year Plan (1956–61)

The rehabilitation and modernisation of Railway assets, both mobile and immobile, were to be continued during the Second Plan so as to reduce the proportion of over-aged stock retained in service and to facilitate the removal of speed restrictions in force over obsolete portions of the track. Also the increases in line capacity and rolling stock had to be planned to meet the greater demand for rail transport. The railway plan had also to take into account the effective coordination of all forms of transport in their appropriate functions to avoid wasteful duplication. The Second Five-Year Plan provided for an outlay of Rs. 723 crore for Railways.

Third Five-Year Plan (1961–66)

The main objective of the Third Five-Year Plan was to keep rail transport policy ahead of demand. A beginning was made towards modernisation of traction with dieselisation and electrification. The Plan provided for an outlay of Rs. 1326 crore for Railways. The programme for Railways was formulated on the basis of originating freight traffic reaching a figure of about 245 million tonnes in one year, 1965–66, i.e. the last year of the Third Plan. The volume of traffic was thus expected to increase over that in 1960–61 by 91 million tonnes, i.e. by about 59 per cent. It provided for an increase of 3 per cent per annum in the non-suburban traffic and the increase of a substantially high order in suburban traffic.

Annual Plans (1966–69)

In the Annual Plans (1966–69) the emphasis shifted to completion of quick result yielding ongoing schemes. Optimum utilisation of capacity already created was another aim.

Fourth Five-Year Plan (1969–74)

In the Fourth Five-Year Plan, the Railway development programme provided for an anticipated increase in freight and passenger traffic. Equipment and

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operations were to be modernised to improve the efficiency of the system and reduce costs. The pace of conversion from metre gauge to broad gauge was accelerated in areas of rapid economic development and high traffic potential. The plan provided for an outlay of Rs. 1000 crore for this programme excluding an expenditure of Rs. 525 crore, to be met by the Railways from their Depreciation Reserve Fund. In addition there was a provision of Rs. 20 crore of metropolitan transport.

Fifth Five-Year Plan (1974–78)

By 1978–79, the Railways were to be equipped to carry an estimated originating freight traffic of 250 to 260 million tonnes, the largest single commodity being 98 million tonnes of coal. The Fifth Five-Year Plan provided for an outlay of Rs. 1523 crore for Railways which included the outlay financed from the Depreciation Reserve Fund. Full provision was made for completion of ongoing traffic and project oriented lines. Emphasis was on achieving financial viability through improvement in efficiency, reduction in costs and better utilisation of existing assets. To tackle the problem of commuter traffic, a beginning was made on provision of rapid transit system in the metropolitan cities.

Sixth Five-Year Plan (1980–85)

During 1978–80 the Rolling Plan was in operation. And in the Sixth Plan, against an outlay of Rs. 5100 crore, the expenditure was around Rs. 6573 crore. The performance during the years 1981–82 and 1982–83 was creditable and set the pace for future development. With the wagon fleet unchanged in numbers, 47 million tonnes of additional freight traffic was carried. Fares and freight rates were rationalised and brought more or less in line with costs. Contribution to Depreciation Reserve Fund was substantially stepped up from Rs. 125 crore per year in the Fifth Plan to Rs. 850 crore in the later years of the Sixth Plan.[5]

The position in respect of procurement of rolling stock, track renewals and electrification during the Sixth Plan is given in Table 15.1.[6]

Table 15.1
Rolling Stock Acquisition, Track Renewals and Electrification in the Sixth Plan

	Target	*Actual*
1. Procurement of Rolling Stock		
(a) Wagons (lakh in 4 wheeler equivalent)	1.00	0.73
(b) Locomotives (Nos.)	780	927
(c) Coaches (Nos.)	5680	5326
(d) Electrical Multiple Units (Nos.)	606	707
2. Track Renewals (Kms.)	14000	9541
3. Electrification (Kms.)	2800	1522

[5] *Seventh Five-Year Plan, op. cit.*, pp. 473–474.
[6] Based on information received from the Ministry of Railways.

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Seventh Five-Year Plan (1985–90)

A provision of Rs. 12334.30 crore has been made in the Seventh Plan for the Railways. The Plan head-wise break-up of the outlays is given in Table 15.2.

Table 15.2
Railways—Plan Headwise—Outlays

(Rs. in crores)

1.	Rolling stock	—	4290.30
2.	Workshops & Sheds	—	1200.00
3.	Machinery and Plant		
4.	Track Renewals	—	2500.00
5.	Bridge Works	—	284.00
6.	Line Capacity Works	—	1300.00
7.	Signalling and Safety	—	400.00
8.	Freight Operation's Information System	—	400.00
9.	Electrification	—	830.00
10.	Other Electrical Works	—	80.00
11.	New Lines	—	350.00
12.	Staff Quarters	—	175.00
13.	Staff Welfare		
14.	Users' Amenities		
15.	Other specified works		
16.	Railway Research	—	25.00
17.	Inventories	—	100.00
18.	Metropolitan Transport Projects	—	4000.00
	Total:		12334.30

It is proposed to acquire 96000 wagons, 6970 passenger coaches, 950 electrical multiple units and 1235 diesel/electric locomotives during this plan period. Also 19000–21000 km of track renewal is to be undertaken with priority accorded to renewal works on high density corridors. 3400 km of track would be electrified with priority being given to high density routes. Apart from this, the capacity for the manufacture of passenger coaches, EMUs (electric multiple units) and electric locomotives would be increased, communication network would be upgraded, and computer based freight information system will be brought into operation.[7]

Annual Plan Outlay for 1985–86, 1986–87 and 1987–88

The Annual Plan outlay for the Railways during the year 1985–86 was Rs. 2050 crore comprising Rs. 1061 crore (52 per cent) as contribution by Railways from their own internal resources, and Rs. 989 crore (48 per cent) as budgetary

[7] *Seventh Five-Year Plan*, op. cit., pp. 484–85.

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support. Indian Railways is expected to maintain its contribution at this high level. The contribution to Depreciation Reserve Fund was also expected to be at Rs. 920 crore as provided in the Budget Estimates as against Rs. 850 crore in 1984–85.

In the year 1986–87, the Railways were allotted a plan outlay of Rs. 2650 crore of which Rs. 1370 crore was to be met by the Railways from their internal resource generation. It was also contemplated to raise Rs. 250 crore through public borrowings.

In the year 1987–88, the Railways outlay was Rs. 3300 crore. The actual expenditure during the year was expected to be of the order of Rs. 3463 crore.

1987–88 was the third year of the Seventh Five-Year Plan and during this year the Railways lifted about 320.4 million tonnes of originating traffic, including 28.21 million tonnes of non-revenue traffic.

During the year, the Railways procured 214 locomotives. 1198 coaches, 87 EMUs and Metro and 15899 wagons; the Railways also completed 4540 km of track renewals, 681 km of electrification, 188 km of new lines and 178 km of gauge conversion.[8]

The main efficiency indicator, viz. 'net tonne km per wagon per day' reached an all time high of 1440 (B.G.) as against 1420 (B.G.) in the previous year.

Corporate Planning

The Railways Corporate Plan for the period upto 1988–89, has been revised to cover the period upto AD 2000.

Traffic forecasts for AD 2000 as made by the National Transport Policy Committee, Railway Tariff Enquiry Committee, Railway Reforms Committee and Railways Planning Cell are given in Table 15.3.[9]

Table 15.3
Traffic forecasts for AD 2000

	Traffic forecasts for AD 2000 by			
	NTPC	*RTEC*	*RRC*	*Railways*
Passenger Traffic Passenger km (billion)	426–462	488	400	424
Freight Traffic originating tonnes (million)	Not projected	672	644	599–639
Net tonne km (billion)	435–468	406	375	408–438

[8] Based on information received from the Ministry of Railways.
[9] *Ibid.*

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Network of Indian Railways

Track constitutes the basic infrastructure of the Railway system and its maintenance and upkeep is most essential for the smooth and efficient working of Railways. Building up of a sound and reliable track structure which forms the backbone of the railway system has, therefore assumed prime importance.

The Indian Railways had 61,813 route km of railway lines at the end of March 1987. This represents the aggregate route length and includes the length of 13,605 route kilometres which have either double or multiple tracks. The total length of running track is 77,254 km. Besides, there are tracks in the yards and sidings and taking these also into account, the total length of track stood at 106,615 km. Since 1950–51, 8,228 km of new lines have been added to the network and double and multiple lines have been provided on 8,369 km of route length.

Gaugewise Analysis

Of the three gauges on the Indian Railways, Broad Gauge is the most predominant as would be seen from Table 15.4.

Table 15.4
Route kilometres (as on 31–3–1985)

Gauge		Total	Single line			Double/Multiple line		
			Electrified	Other	Total	Electrified	Other	Total
Broad	1.676 m	33,665	1,398	18,961	20,359	5,711	7,595	13,306
Metre	1.000 m	23,901	137	23,465	23,602	29	270	299
Narrow	0.762 m							
	0.610 m	4,247	—	4,247	4,247	—	—	—
Total		61,813	1,535	46,673	48,203	5,740	7,865	13,605

Although Broad Gauge forms only 54.46 per cent of the total route kilometres, it accounts for 90.05 per cent of the freight tonne km and about 82.53 per cent of the passenger kilometres. Metre Gauge covering 38.67 per cent of the total route km carries only 9.88 per cent of the freight tonnes km and 16.92 per cent of the passenger km. Narrow Gauge comprising 6.86 per cent of the total network accounts for the residual 0.07 per cent of the freight tonne km and 0.55 per cent of the passenger km. Almost all the double/multiple track sections (22.01 per cent of the total route km) and electrified sections (11.77 per cent of the route km) are on the Broad Gauge. Metre Gauge and Narrow Gauge sections are mostly single line and not electrified with a few exceptions on Metre Gauge.

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Bridges

As on March 31, 1987, there were 1,14,260 bridges on Indian Railways. Out of these, 9,713 were classified as "Major Bridges", each with a water way of 18m (60 lineal ft.) or more or with a clear opening of 12m (40 lineal ft.) or more in any one span, and the rest as "Minor Bridges".

Every year a number of new bridges are constructed and some of the existing bridge are rebuilt, regirdered or otherwise strengthened on condition basis to make them fit for carrying heavier and faster traffic. During 1986–87, 323 bridges were rebuilt and 462 were rehabilitated.

For the facility of the public, road over/under bridges in replacement of existing level crossings are provided, where justified by the volume of traffic, with the expenditure shared by the State Governments and the Railways. Nine such bridges were constructed during the year 1986–87 and the work was in progress on 110 bridges at the end of the year.

Railway Electrification

Electrification on Indian Railways was first introduced in 1925 to move heavy suburban traffic in the Bombay area and a 16 km section from Bombay V.T. to Kurla was electrified. The electrification was later extended on main line upto Pune and Igatpuri. Prior to 1956, only 529 route kilometres were under electrification on Indian Railways. The electrification of Howrah–Burdwan suburban section of Calcutta was taken up during the First Five-Year Plan. Thereafter, electrification on Indian Railways has continued in a planned manner.

As on March 31, 1985, the Railways had 6440 electrified route kilometres mostly on B.G. sections. The progress on electrification during various plan periods is shown Table 15.5.

Table 15.5
Progress on electrification during various plan periods

Period	*R/Ms electrified*
Prior to 1956	529
Second Five-Year Plan (1956–61)	216
Third Five-Year Plan (1961–66)	1678
Inter Plan (1966–69)	814
Fourth Five-Year Plan (1969–74)	953
Fifth Plan (1974–78)	533
Rolling Plan (1978–80)	195
Sixth Five-Year Plan (1980–85)	1522
First three years of Seventh Plan (1985–88)	1715
Total:	8155

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During the Seventh Plan, it is proposed (planned) to energise about 3400 route kilometres and for this purpose an outlay of Rs. 830 crore has been approved by the Planning Commission. Electrification of the main trunk routes has been given higher priority and the progress of electrification of main trunk routes is as under:

(a) Delhi–Bombay via Western Railway completed in December 1987.
(b) Delhi–Bombay via Central Railway target March 31, 1991.
(c) Delhi–Madras G.T. route to be completed in 1989–90.
(d) Bombay–Howrah via Nagpur to be completed in 1990.

In addition, the following small sections are being completed in the Seventh Plan for meeting operational requirements.

1. Colliery lines in Chandrapura Complex.
2. Tundle–Agra–Bayana.
3. Krishna Canal–Guntur–Tenali.
4. Champa–Gevra Road.
5. Diva–Panvel.
6. Koraput–Daman Jodi.

During the first three years of the Seventh Plan, the progress of electrification has picked up as under:

Year	*Route kilometres energised*
1985–86	461
1986–87	573
1987–88	681

During the remaining two years of the Seventh Plan, route kilometres expected to be energised are 680 and 850, respectively.[10]

The Traction Scene

In keeping with the policy of modernisation of Indian Railways, steam locomotives are being gradually replaced by diesel and electric locomotives as they are better suited to cater to the requirements of heavier and speedier trains and are also more economical. Electrified route kilometres on Indian Railways presently constitute about 12 per cent of the total route km and about 22.01 per cent of the Broad Gauge route kilometres. About 29.3 per cent of total passenger train kilometres during 1986–87 were operated on electric traction; freight traffic under electric traction during the same period accounted for 37.9 per cent of the total B.G. Bross Tonne Kilometres.

[10] *Ibid.*

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Freight Traffic

Indian Railways loaded 290.20 million tonnes of Revenue Earning Freight Traffic during 1987–88 which is a new performance record. The year ended with a net revenue of Rs. 723.15 crore as against Rs. 709 crore anticipated.* The average load of traffic has gradually increased over time from 470 km in 1950–51 to 690 km in 1984–85, peaking at 720 km in 1980–81.

Rail transport helps to maximise the movement of essential commodities like coal, cement, foodgrains, fertilisers, sugar, salt, etc. to far-flung areas in the country. These commodities made up about 82 per cent of total originating traffic and 78.4 per cent of total tonne kilometrage in 1986–87.**

During 1986–87, the programme for acquisition of new wagons was stepped up to 20,000 four wheeler units as against about 12,500 four wheeler units in 1985–86, to enable Railways to enhance the transport capacity of the system to meet the growing traffic. The actual procurement of wagons was however 16,045.5 wagons (in terms of 4-wheelers). Emphasis will continue to be placed on renewal and replacement of the over-aged assets. Rs. 2697 crore were spent during 1986–87 as compared to about Rs. 1942 crore in 1985–86. 70 kilometres of new lines have been completed during 1986–87.

Passenger Traffic

The overall National Policy is to promote a harmonious development of various modes of transport with a view to minimising the total transport cost of the country. With this in view, the Railways have been concentrating on long distance passenger traffic as against short distance traffic, which can be more economically carried by road transport. Over time, the growth of passenger traffic too has been accompanied by significant shifts in its composition. Passenger revenues during 1986–87 amounted to Rs. 1939.74 crore which was Rs. 220.34 crore or 12.8 per cent more than that in 1985–86. Information relating to growth of passenger traffic, both non-suburban and suburban, during the period 1950–51—1986–87 is given in the table given at Appendix 15.4.

Train Accidents

The safe transit of passenger and goods continues to be a matter of high priority for the Railways. The number of train accidents declined from 717 in 1985–86 to 644 in 1986–87 registering a drop of 10.2 per cent despite an increase in train kilometres from 570 million in 1985–86 to 582 million in 1986–87.

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* See Appendix 15.2 for a table showing the freight traffic carried by the Railways during some selected years since 1950–51.

** See Appendix 15.3 for a table showing the changing composition of originating Railway traffic.

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Railway Finances

The Railway Budget was separated from the General Budget in 1924–25. Under the Separation Conventions, the Railways are required to pay a dividend at a rate fixed by the Railway Convention Committee of Parliament on the capital, the whole of which has been provided by the Central Government. Subject to this obligation to pay dividend to the General Exchequer and observance of the national economic policies, the Railways are free to pursue their own financial policies.

The Railways have all along been obtaining budgetary support from the General Finance. However, owing to various constraints, adequate funds could not become available to meet the Railways' Plan requirement. In 1986–87 it was accordingly decided to secure funds through public borrowings to augment railway plan finances. For this purpose, a public sector undertaking known as 'Indian Railway Finance Corporation' has been set up under the Ministry of Railways. The Funds procured by Indian Railway Finance Corporation through public borrowings form part of the Plan Outlay to be utilised for procurement of Railways' planned assets and lease the assets to the Railways on payment of leasing charges.[11]

Railway Convention Committee

The rate of dividend as well as other financial arrangements between Railways and General Finances are reviewed once in five years by a Parliamentary Convention Committee. The Committee constituted in October 1980, in pursuance of Resolutions adopted by the two Houses of Parliament in August 1980, was 'to review the rate of dividend which is at present payable by the Railway Undertaking to General Revenues as well as other Ancillary Matters in connection with the Railway Finance *vis-a-vis*, the General Finance and make recommendations thereon.'

The Committee in its Seventh Report had recommended the rates at which the dividend should be paid for the period 1980–84 by the Railways to General Revenues pending their final recommendations for the Sixth Plan period (1980–85) as a whole and settling the manner in which the difference between the dividend payable and that paid should be treated. The Committee in its Tenth Report, presented to Lok Sabha on February 24, 1984 agreed that the rates as applicable for the period 1980–84 may be adopted for making provision for the actual payment of dividend in the Budget 1984–85 also. Accordingly, they recommended that 'the existing rate of dividend of 6 per cent on the capital invested on the Railways upto March 31, 1980 (inclusive of 1.5 per cent of the capital invested upto March 31, 1964 as payment to States in lieu of Passenger Fare Tax) and 6.5 per cent on capital invested thereafter may be adopted while framing the budget for 1984–85.' The Committee could not give its final recommendations in respect of rate of dividend, etc. before it ceased to

[11] *Ibid.*

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exist with effect from December 31, 1984 when the Seventh Lok Sabha was dissolved.

After the constitution of the Eighth Lok Sabha a new Railway Convention Committee was constituted in May 1985. This Committee in its Third Report on "Rate of Dividend for 1986–87 and other Ancillary Matters," presented to Lok Sabha on February 21, 1986, recommended that the existing rates of dividend of 6 per cent on the capital invested on the Railways upto March 31, 1980 (inclusive 1.5 per cent on the capital invested upto March 31, 1964, less the capital qualifying for subsidy, for payment to States as grant in lieu of Passenger Fare Tax, and contribution for assisting the States for financing Safety Works) and 6.5 per cent on capital invested thereafter may be adopted while framing the Revised Estimates for 1985–86 and the Budget Estimates for 1986–87. The concessions available to Railways in the matter of computing dividend and the subsidy to Railways from the General Revenues on the existing basis may also be adopted provisionally while framing Revised Estimates for 1985–86 and Budget Estimates for 1986–87.[12]

The Parliament exercises control over Railway finances and policies through discussions and voting on Railway Budget, Railway Demands for Grants and also through various Parliamentary Committees like the Public Accounts Committee, the Estimates Committee and the Railway Convention Commmittee.

Besides, there is also a Consultative Committee of Members of Parliament for the Department of Railways and nine informal Consultative Committees, one for each Zonal Railway, where Members of Parliament discuss and offer advice and suggestions on important aspects of railway working. The Committee in their Seventh and Tenth Reports presented to Parliament on February 24, 1987 and February 23, 1988 have, as an interim measure, recommended the same rate of dividend etc. for the years 1987–88 and 1988–89 respectively as for the two previous years.

Performance in 1986–87

The year 1986–87 is the second year of the Seventh Five-Year Plan (1985–90). The Planning Commission had allocated an outlay of Rs. 2,650 crore for the Railways' Annual Plan 1986–87. This year showed a massive increase in freight loading on Indian Railways when the originating loading increased from 286.4 million tonnes in 1985–86 to 307.31 million tonnes in 1986–87. This comprised 277.75 million tonnes of revenue earning traffic and 29.56 million tonnes of non-revenue traffic which works out to an increase of 7.3 per cent during the year. The transport output when measured in terms of net tonne km reached 223.1 billion km registering an increase of 8.35 per cent over the last year. The main efficiency indicator viz. 'net tonne km per wagon per day' reached an all time high of 1420 (B.G.) as against 1296 (B.G.) in 1985–86 thereby showing a further increase of 9.6 per cent.

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[12] Lok Sabha Secretariat: *Third Report of Railway Convention Committee* (1985), p. 5.

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During the year under review, Railways acquired 241 locomotives, 1,193 coaches, 96 EMUs and 16,045 wagons in terms of 4-wheelers. The pace of electrification has also been stepped up and during the year 573 route km were energised against 461 route km in the previous year. Similarly, 3,978 km of track renewals were completed against 3,578 in 1985–86.[13]

ROAD TRANSPORT

Road transport is one of the most promising and potent means for rapid industrial and agricultural advancement. It plays an important role in the economy of the country and is particularly suitable for short and medium distances. It provides the basic infrastructure for bringing the majority of the people who are living in far off villages into the mainstream of national life by connecting them with the rest of the country. While railways occupy the predominant position in the transport network in the country, the role of road transport has steadily been increasing. With the spread of green revolution in the country and industrial growth and opening up of new areas, road transport has assumed greater importance as the growing demands for supply of inputs like fertilisers, seeds, etc. as well as the transport of agricultural produce to markets have to be met largely by road transport. Road transport offers a number of advantages such as flexibility, reliability, speed and door to door service. Other transport modes too function more effectively when linked to road. Road transport has also a vital role to play in the development and opening up of backward and interior/remote areas of the country. It has also been an important source of employment for skilled and semi-skilled labour. The automobile, which is essentially a product of the 20th century, has in a very short time come to prominence and today occupies an important place in the transportation system of every industrially advanced country. It has shown admirable and quick response to transport requirements of the civilised world unparalleled by railway industry.

The motor vehicle population in the country has been continuously increasing. From just 34,000 in 1950–51 the number of buses had gone up to 2,42,000 in 1986–87, thereby registering an average annual growth of 5.4 per cent on an average. In the corresponding period, the number of trucks increased from 82,000 to 9,60,000 at an annual rate of 6.8 per cent. The Seventh Plan envisages an annual growth of 8 per cent of both the truck and bus fleets. The share of road transport in overall traffic has been continuously increasing and there has been a substantial shift from rail to road over the years because of constraints in capacity on the railways combined with inherent advantages of road transport and expansion of road network.

The private sector runs almost the entire trucking industry and operates

[13] Based on information received from the Ministry of Railways.

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about 60 per cent of passenger services.[14] The pattern of ownership of buses and trucks is shown in the table at Appendix 15.5.

Road Development

While the road network in the country has registered over four-fold growth since independence, the traffic on the roads has increased considerably both in terms of number of vehicles and the load carried. The rate of growth of road traffic on the National Highways is in the range of 7 to 15 per cent per annum. The result has been that a need is being increasingly felt to widen and strengthen the road pavement. The total length of National Highways is 31,803 km including 93 km of express way route from Ahmedabad to Vadodara, 285 km length of newly declared N.H. No. 56 linking Lucknow-Varanasi via Sultanpur and Jaunpur in UP and N.H. No. 4B linking Nhave-Sheva Port Complex with N.H. No. 4 and N.H. No. 17. Development of this system to provide for free flow of traffic by constructing missing road-links, bridges over unbridged crossings, improving low-grade sections, widening and strengthening the pavements of existing highways, improving geometrics, etc. is receiving due attention within the available resources.[15]

Classification of Roads

Indian roads are classified into five categories for administrative purposes, namely (1) National Highways (2) State Highways (3) District Roads (4) Village Roads and (5) Unclassified Village Roads.

National Highways are the principal arterial routes connecting the Union capital with the State capitals, major ports and various highways and meet the strategic needs of the defence of the country.

State Highways connect State capitals with district headquarters and important cities and towns within the State, the National Highway and the highways of the adjacent States and meet the needs of the traffic to and from the districts.

District roads take the traffic from the main roads to the interior of each district and rural areas and to smaller units. They connect the areas of production and markets with each other as well as with the other highways and railways. They are sub-classified into Major District Roads (MDRs) which are metalled roads and have a higher standard and specification and Other District Roads (ODRs) which are of relatively lower specification and design.

Classified Village Roads connect villages or groups of villages with each other and the nearest district roads and other main highways, railway stations and river ghats. These roads form the basic infrastructure in the matter of linkages to villages and rural areas.

Unclassified Village Roads are mostly earthen roads and are of much lower standard and would in most cases be tracks in the rural areas.

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[14] *Seventh Five-Year Plan*, 1985–90, *op. cit.*, p. 494.

[15] Based on information received from the Ministry of Surface Transport.

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20-Year Road Development Plan (1961–81)

In 1957, chief engineers in charge of road and bridge development of the Central and State Governments met to formulate a new road plan for 20 years starting from 1961 which was also popularly known as 'Bombay Plan'. Factors like the size of area, population, regional levels of development and future potential were taken into account while formulating the plan. The plan anticipated an increase in road length from 3.79 lakh miles (6.09 lakh km) in 1961 to 6.57 lakh miles (10.51 lakh km) in 1981 of which over 40 per cent were to be surfaced roads. The plan target was to achieve an overall density of 32.5 km of road per 100 sq km of area, 44 km of roads for developed agricultural areas, 19 km for semi-developed areas and 12 km for under-developed areas. The cost of completing the programme was estimated at Rs. 5200 crore (at 1958 prices) of which Rs. 630 crore were for village roads.

Against the target of 51,200 km of National Highways in the Bombay plan, actual realisation by March 1978 was 28,970 km only, of which 98 per cent or 28,508 km was surfaced road length. The estimated achievement for State highways was 98,000 km (of which 90,000 km was surfaced length) against the target of 1,12,000 km. For major district roads, other district roads and classified village roads taken together, the Bombay plan target of 8.88 lakh km had, however, been more than realised, with the construction of 9.7 lakh km of roads. Of the National Highways, 63 per cent had a two-lane carriageway width. Most of the roads of other categories had a single lane carriageway width.

The Bombay plan, did not include 'project' and 'urban' roads. Project roads are constructed and maintained by Government Departments like irrigation, forest, electricity and sugarcane and agencies like Central Coal Mines Authority and Central Electricity Authority. Most of these roads are developed primarily to provide access to material resources for concerned agencies. The urban roads are developed and maintained by local bodies, namely, Municipal Authorities, Notified Area Committees, Cantonment Boards, CPWD, Railways, Port Authorities and Military Engineering Service.[16]

Development of Roads and Road Transport during Various Plan Periods

Since the inception of Planning, the road network expanded from 4 lakh km in 1950–51 to 17.7 lakh km in 1984–85 or on an average by about 4.5 per cent per year. The National Highways encompass a road length of 31,803 km and carry nearly a third of the total road traffic. The rural road network now connects 64 per cent of the villages, though not with all-weather roads. There are about 15 million bullock carts and they are serving rural transport. According to NTPC, (National Transport Policy Committee) about four lakh villages are not connected by all-weather roads. The number of villages which remain to be connected with a road link (of any type) is more than 3 lakh. In many such

[16] Government of India: Report of the National Transport Policy Committee, 1980, p. 165.

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villages people are prevented from selling their produce because as soon as the monsoon sets in, the village is cut off and communication to the village becomes difficult. For improvement of transport facilities, it is necessary to have sufficient Rural Link Roads. Also, construction of Rural Link Roads should be treated as a measure for rural reconstruction.[17]

The total provision in the First Five-Year Plan for road development was about Rs. 100 crore, of which about a quarter was to be spent on development of National Highways and the rest mainly on State Roads. During the Second Plan, the general policy for the development of road transport was to favour the setting up of Corporations under the Road Transport Corporations Act, 1950 and a provision of Rs. 10 crore was made in the Railway Plan which enabled the Railways to participate in these Corporations. Such Corporations lead to the coordination of rail transport with road transport so as to secure integrated operations in the best interest of the country. A programme of about Rs. 3 crore was approved for Delhi transport service making the total investment to be made on nationalised road transport about Rs. 17 crore.

The road development programme for the Third Plan was formulated in accordance with the broad objectives laid down in the twenty year Road Development plan for the period 1961–81. The cost of this programme in the Third Plan was about Rs. 324 crore covering National Highways and roads of inter-state and economic importance. During this Plan the expansion programmes of the nationalised road transport undertakings in the States were estimated to cost Rs. 26 crore.

In the Fourth Plan a provision of Rs. 418 crore was made for development programmes in the Central Sector to bring about improvements in the existing network of National Highways. Special emphasis was given on the development of rural roads and maintenance of existing roads. The total goods traffic by road transport was expected to increase from about 40 thousand million tonne kilometres in 1968–69 to 84 TMTK in 1973–74. A provision of Rs. 89 crore was proposed for augmenting the services of the nationalised transport undertakings of the States. A large part of the expansion of road transport was expected to be in the private sector.

During the Fifth Plan period, the main emphasis was on completion of spill-over works of the Fourth Plan, including a number of missing bridges and road links. Besides, there was also provision for certain new schemes of essential character, particularly relating to the safety of traffic.

In the Sixth Plan, 2,687 km of roads were upgraded as National Highways and 5.77 lakh km of different types of roads were added to the road grid. About 16,000 villages were connected with roads under Minimum Needs Programme as against a target of 28,000. The work on upgradation of National Highways, which was continued, comprised construction of 166 km of missing links, 4224 km widening to two lanes, 90 km of four-laning, 50 by-passes, 7 missing major bridges and 467 minor bridges. An outlay of Rs. 830 crore was

[17] *Ibid*, pp. 165-169.

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provided in the Sixth Plan under the Central Sector roads programme. The expenditure, however, was about Rs. 760 crore, the shortfall occurring largely as a result of out backs in allocation.[18]

The Seventh Plan

Many broad objectives have been planned in the Seventh Plan period for the development of roads and road transport. These are as follows:

1. Progressive removal of the present deficiencies in the National Highway, State Highway and Major District and other Road Systems, and the achievement of consolidation and upgradation rather than continued expansion of the road network.
2. Continued emphasis on provision of roads to villages so as to achieve the MNP (Minimum Needs Programme) targets by 1990.
3. Energy conservation.
4. Adoption of measures to preserve and enhance environmental quality of highways.
5. Reduction in road accident rates.
6. Improvement in the road system to bring about better productivity in the road transport sector.
7. To plan for a new generation of roads on high density corridors with provision of divided carriageway facilities.
8. To use road construction programme as a means of generating employment.

Productivity of road transport needs to be improved. Measures to be taken in this regard include replacement of over-aged fleet, provision of maintenance facilities and in-service training of staff and improved management and operational practices. The need for higher outlays in the road sector is recognised. However, due to constraint of resources, an outlay of Rs. 1019.75 crore has been indicated for Central Sector Roads. The requirement would be reviewed during the Annual Plans and necessary adjustments done on that stage. In the State Sector an outlay of Rs. 4180.29 crore is provided for roads out of an outlay of Rs. 1990.10 crore for road transport, an outlay of Rs. 230.92 crore has been provided to Central Sector in the Seventh Plan of which Rs. 100 crore is set aside for the Delhi Transport Corporation. The DTC will give priority to replacement of over-aged vehicles which are estimated at about 1118 buses. Modernisation of workshops and other infrastructural facilities will also be continued in the Seventh Plan.

The fare structure of SRTUs (State Road Transport Undertakings) should be revised and brought in line with cost structures. The SRTUs should have the freedom and flexibility to revise fare structure, as suggested in the case of rail, to accommodate standard cost escalation. At the same time, care should be taken not to allow fare increase to cover up inefficient operations.

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[18] *Seventh Five Year Plan*, op. cit., pp. 485-86.

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There is need to rationalise the structure of taxes levied by the State Governments. Their incidence on SRTUs tends to be substantial, particularly in certain States.[19]

Freight Transport

Trucking industry is predominantly in the unorganised private sector, and bulk of truck operators are single truck owners. The operators face many irritants, like levy of multi-point octroi, which impede the free flow of goods traffic, that need to be removed. Organisational improvements with a view to encouraging pooled operations through corporations and limited companies should go a long way to get better utilisation of the available transport capacity. In the non-mechanised sector, there are nearly 15 million bullock carts in the country carrying an estimated 900 million tonnes of originating traffic with a lead of 10 km. While these carts would continue to be an optimal means of transportation within a limited radius, the need for motorised services in the rural areas would also be growing. These services would be economical if vehicles are equipped to carry both passengers and goods.

Urban Transport

Provision of transport facilities has to be integrated with land use planning, which is particularly important for small and medium size cities. It is also essential to prepare perspective transport plans for all cities so as to avoid fragmented, costly and often partial solutions. There should be greater emphasis on electrically powered public transport system. As such, a pilot project for electric trolley bus services in small cities would be taken up to gather data and examine its economic and operational characteristics. If found successful, this mode could then be usefully introduced in other cities. Inter-modal studies also need to be taken up in order to identify the problem areas and plan for remedial steps. Road accident rate in India is one of the highest in the world, causing an economic loss of a substantial order. To reduce the incidence of accidents a variety of traffic safety measures would be pursued. These include establishment of driver training schools, use of special equipment for testing drivers during licensing, use of appropriate equipments for checking performance of vehicles; overspeeding and drunkenness.[20]

Nationalisation of Road Transport

Most of the States and Union territories have nationalised passenger transport in varying degrees. In the country as a whole, 38.4 per cent buses are being run by the Public Sector Undertakings. Statutory Corporations have been set up under the Road Transport Corporation Act, 1950 in several States. In other States, the nationalised services are operated by Departmental or Municipal

[19] *Ibid.*, pp. 486–495.
[20] *Seventh Five-Year Plan, op. cit.*, p. 498.

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Corporations or registered companies. In most of the big cities, buses are State owned. Goods transport is almost exclusively in the private sector.

Transport Bodies

To ensure coordination between the Central and State policies and operation of road transport, the Government has set up a Transport Development Council. The Inter-State Transport Commission, a statutory body, is responsible for the development, coordination and regulation of road transport services on Inter-States routes. As a result of the efforts made by the Commission almost all the States and UTs now have reciprocal arrangements for operation of goods and passenger services. They have introduced zonal permit schemes for the unhindered movement of limited numbers of public goods carriers over the national and state highways on payment of tax at a single point.[21] State participation in road transport commenced in 1950 and was introduced to provide efficient and adequate passenger services as well as goods transport to meet the needs of hilly and under-developed areas which are of little interest to private operators. State Transport Undertakings have been formed in every State and Union territory and currently 55 SRTUs are operating. Their total fleet strength as on March 1987 was 87251 buses with a total investment of over Rs. 3000 crore and a direct employment of about 0.7 million and they carry about 45 million passengers per day.[22] They are also helping to secure procedural uniformity, higher standards of service and economic operation.

One of the main problems being faced by road transport vehicles is the restrictions imposed on the movement of these vehicles from one State to another. In view of the increasing demand for transport facilities in the country and increasing role of road transport for movement of goods and passengers, it is imperative that road transport vehicles should be allowed an unrestricted movement so as to transport maximum amount of goods to the various parts of the country.

Inter-State Transport Commission had introduced zonal schemes for the issue of permits, according to which vehicles with these permits, will be eligible to ply within the States covered under the schemes. Five such schemes are in operation viz., South Zone Permit Scheme, Western Zone Scheme, Northern Zone Scheme, Eastern Zone and Central Zone Scheme.

Motor Vehicles Act, 1939

Motor transport was first regulated under the Indian Motor Vehicles Act, 1914 which had limited functions. With the growth of motor transport, the need for regulating it to ensure safety and convenience of the public and development of a coordinated system of transport was realised. This led to the passing of Motor

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[21] India: A Reference Annual, 1986, p. 506 and information received from the Ministry of Surface Transport.

[22] *Seventh Five-Year Plan, op. cit.*, pp. 494–495 and information received from the Ministry of Surface Transport.

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Vehicles Act, 1939. This Act, with the amendments made from time to time continue to be the main instrument through which Motor Transport was regulated in the country. The Act is enforced by State Governments, which, with the concurrence of the Government of India, can introduce amendments to its provisions keeping in view local needs and circumstances. The Act provides for control of motor transport through a permit system which is administered by State and the regional transport authorities. It also prescribes procedures for control and regulation of commercial vehicles, licensing of drivers and conductors, control of traffic by specifying traffic regulations, speed limits, carrying capacity of vehicles and offences and penalties thereof.

Since 1950, various amendments were made in the Act and new provisions/ regulations for proper control and movement of passengers/goods were brought in. The important provisions made during these years include, introduction of a scheme of National Permit for public carriers, and All India Tourist Permit for buses with a view to facilitating inter-State movement of motor vehicular traffic. A ceiling on the number of vehicles for which such national permits could be granted was also fixed.

In the year 1982 an important amendment with regard to grant of compensation on principle of 'No Fault' was also introduced. The Scheme of National Permits with restrictions on the number of permits was further reviewed, and in 1986 through a fresh amendment the quota restrictions have been removed in respect of national permits for public carriers. According to the present scheme any person otherwise eligible and resident of a State can seek a permit from the respective State Transport Authority by paying the Home State taxes as also prescribed amounts of composite fee in respect of each State/Union territory proposed to be operated in. Similarly action to remove the quota restriction in respect of All India Tourist Permit for buses/taxis has also been initiated. In spite of all these amendments brought about from time to time, it had been felt that the Act does not fulfil the present day requirement. There had been an enormous increase in the vehicle population as also substantial changes in the vehicle mix. Various types of motorised vehicles like the moped, scooters, motorcycles, motorised cycle rickshaws, auto-rickshaws, truck-trailer combinations, etc. has been brought into operation. In brief, there has been a sea change in regard to road transport scenario as against the position prevalent at the time the Motor Vehicles Act, 1939 was enacted. All these developments have brought in special problems relating to atmospheric pollution and safety. The Department of Surface Transport had therefore set up a Working Group to examine the scheme of the Act in the light of rapid development of road transport in the country, manufacture of new types of vehicles, new concepts of management of transport and traffic control and other relevant aspects. The Working Group has since submitted its Report and made a number of recommendations for a comprehensive amendment of the Act. The recommendations of the Working Group have been considered by the Government in consultation with the State Governments and have been accepted in principle. Major recommendations of the Group included:

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(a) Removal of multiplicity of permits of goods carriers and replacement thereof with only two kinds of permits namely inter-State and intra-State with simplified procedure for issuance/renewal of permits.
(b) Provisions to make issuance of driving licence stricter with special emphasis on requirement for the applicant to undergo training in the driver training school, to be made applicable in respect of drivers for transport vehicles.
(c) Simplifying the procedure for fixing passenger fares by the State Governments.
(d) Liberal system of issuance of stage carriage permits on non-nationalised routes.
(e) Setting up national level road safety council under the Chairmanship of the Minister of State for Surface Transport and consisting of half the members of the Transport Development Council which will be replaced by the other half in the next year and also experts in the discipline.
(f) Stringent measures to control over-loading on trucks which in consequence will enable switch-over from conventional vehicles to multi-axle vehicles.
(g) Fixing of age-limit for different types of transport vehicles to ensure that over-aged vehicles do not pose hazards on the road.

On the basis of the recommendations of the Working Group as finally accepted in consultation with the State Government, a comprehensive MV Bill, 1988 replacing the MV Act, 1939 was introduced in the 1988 Budget session of Parliament. The Bill was passed in the Monsoon Session and was assented to by the President on October 14, 1988.

Motor Vehicles Act, 1988

The major provisions of the Act are:

(i) liberalisation of the permits for owners of transport vehicles willing to ply on any non-nationalised route; (in routes of less than 50 km, only individuals or State Transport Undertaking shall be entitled for necessary permits);
(ii) abolition of ceilings on the number of permits to be issued to the State Transport undertakings, Tourism Departments and All India taxi coaches in a particular state (but there will be a ceiling on the holding of such permits by individuals and firms);
(iii) rationalisation of certain definitions with additions of definitions of new types of vehicles;
(iv) stricter procedures relating to the grant of driving licences and their renewal (medical test has now been made compulsory for drivers of commercial vehicles);
(v) control of air and noise pollution;
(vi) elimination of corruption at the Road Transport Offices in the matter of issuing fitness certificates for vehicles (State Governments are now

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authorised to select competent and experienced garages for issuing fitness certificates);

(vii) devising new procedures for nationalisation of routes (what is sought to be done is to fix a maximum limit of one year for carrying out any scheme of nationalisation of routes failing which the old scheme will continue);

(viii) increase in the payment of compensation to the victims of accident;

(ix) enabling provision for updating the system of registration works, administration of the solatium scheme by the General Insurance Corporation;

(x) constitution of road safety councils; and

(xi) maintenance of state registers for driving licences and vehicle registration.[23]

Solatium Fund Authority

Till the end of March 1986, an amount of Rs. 75.91 lakh was placed at the disposal of State Governments and UT Administrations for disbursement to the victims of motor accidents. The claims for solatium as and when received are scrutinised expeditiously.

Recently, while reviewing the working of the Solatium Fund Authority, it has been held that instead of having the Authority as an office of the Government of India, this work could be entrusted to the General Insurance Corporation, in view of coverage of risks through insurance in respect of vehicles. The working group set up by the Government has also made similar recommendations. Necessary steps have been initiated in this regard. However, the basic concept of the scheme remains unchanged.

Zonal Permits Scheme

It was decided in one of the meetings of I.S.T.C. to abolish the Zonal permit schemes in view of the removal of restrictions on issue of National Permits. However, the States/UTs were advised to continue the existing Zonal permits till the date of their validity. No fresh Zonal permits were to be issued.

The National Highways Authority of India Act, 1988

Under the National Highways Act, 1956, the execution of field activities including survey, investigation and preparation of projects on national highways were delegated to the respective State Governments. On the other hand, the Central Government retained the activities pertaining to planning, approval of design and estimates, monitoring, etc. Because of this dual control, certain difficulties were experienced in the development and maintenance of national highway systems. It was to overcome such problems that the National Highways Authority of India Act, 1988 was enacted.

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[23] *Lok Sabha Debates*, August 22, 1988, pp. 10472–91.

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The National Highways Authority of India Act, 1988, provides for the constitution of an Authority for the development, maintenance and management of national highways and for matters connected therewith or incidental thereto. It is proposed that this authority should take over, in a phased manner, the functions presently being performed by the State Public Works Departments.

WATER TRANSPORT

Ports

There are 10 major ports and 139 minor/intermediate ports located on the vast coastline of 5,560 km. These ports serve as transhipment points between sea and surface transport and points of entry and exit for import and export trade. The successive plans have sought to build up capacity of the ports to match the growing needs of sea borne trade. Upgradation of existing ports and construction of new ports have been parts of this process.

The traffic handled at the major ports increased from 19.2 million tonnes in 1950–51 to 106.73 million tonnes in 1984–85. It is expected to go up to 146.87 million tonnes by 1989–90.

Also the capacity of these major ports is likely to go up to 161.45 million tonnes by the end of the Seventh Plan[24] (1989–90) from the 1984–85 figure of 132.73 million tonnes (for details regarding traffic handled and traffic capacity at the major ports please see Appendix 15.4).

Coastal Shipping

India has a vast coastline of 5,560 km with a number of ports and harbours. There is considerable scope for the utilisation of coastal shipping for the transportation of goods and passengers. Coastal shipping is generally accepted as the most energy efficient and cheapest mode of transport for carriage of bulk traffic over longer distances. Like any other form of water transport it entails no investment in line haul capacity except in navigational aids and terminal facilities. It can play an important role in the integrated transport network of the country.

Coastal trade in India is reserved exclusively for the Indian merchant marine under the Merchant Shipping Act, 1958. The Coastal Shipping traffic increased progressively in the 1950s. From 2.59 million tonnes in 1952 it increased to 3.75 million tonnes in 1963. It dropped to 0.94 million tonnes in 1979. There has been a slight increase thereafter mainly due to increased quantity of coal transported for the Tamil Nadu Electricity Board Power Plant at Tuticorin. The total cargo carried in 1983 was 2.17 million tonnes. Passengers are at present carried from Mainland to Andamans and Lakshadweep Islands and from Bombay to Goa only.

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[24] *Seventh Five-Year Plan, op. cit.*, pp. 500–502.

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Coastal Shipping faces several constraints. The over-aged vessels are not fuel efficient and involve high maintenance and operating costs. This has led to an increase in bunker costs, operating expenses, higher stevedoring charges and uneconomic freight structure which do not compare well with either rail or road. Also, coastal shipping carries low rated bulk commodities like coal, cement and salt for which railway freight rates are lower with consequent consumer preference for rail transport.

Inordinate delays at ports too have affected competitive advantage of coastal shipping. Apart from cumbersome port and custom procedures, other restrictions like inadequate draft have precluded optimal utilisation of shipping capacity. Directional imbalances in coastal traffic movement are also there.

Development of Shipping during Various Plan Periods

During the period of the First Five-Year Plan, the programme for the development of shipping was designed primarily to enable the coastal trade of the country to be reserved for Indian vessels and to ensure their fuller participation in overseas trade. The broad objectives of the Second Plan in respect of shipping were (1) to cater fully to the needs of coastal trade with due regard to the possibility of diverting some traffic from railways to coastal shipping; and (2) to secure an increasing share of India's overseas trade for Indian Ships and build up the nucleus of a tanker fleet. The schemes which were started in the First Plan were to be completed in this period. It was also aimed to modernise and equip the docks to provide for new needs arising from the economic and industrial development of the country. A provision of Rs. 55 crore was made for shipping in the Third Plan. The expansion of shipping had the high priority to enable savings to be effected in foreign exchange expenditure which was being incurred on the carriage of the country's overseas trade. During the Fourth Plan period, ships with a capacity of 0.62 million GRT (Gross Registered Tonnage) were to be delivered on order. A provision of Rs. 135 crore was made for acquisition of ships to reach about 3.5 million GRT of Shipping Tonnage by the end of the Fourth Plan. The Fifth Plan provided an outlay of Rs. 308 crore for major ports, including about Rs. 200 crore for spill-over schemes. The total outlay finally envisaged was Rs. 521.46 crore including Rs. 363.55 crore for spill-over schemes. During the Sixth Plan, the target was to increase the coastal tonnage from 0.254 MGRT to 0.5 MGRT (Million Gross Registered Tonnage) in 1984–85. The actual addition, however, was only 0.10 MGRT, thus taking the total coastal fleet to about 0.35 MGRT by the end of the plan period. Coastal vessels carried 5.5 million tonnes of traffic in 1984–85. Over the years, dry cargo volume, mainly salt and general cargo, has declined while the wet cargo volume has gone up.

Developments during Seventh Plan Period

During the Seventh Plan efforts are on to relieve the constraints affecting coastal Shipping operations to the maximum extent possible. Over-aged vessels

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would be replaced with modern fuel efficient vessels. Licensing system of coastal vessels would permit sufficient freedom of operation to enable switch over to overseas trade. An integrated development of coastal shipping, ports and hinterlands is required. A few minor ports are to be identified and developed to handle coastal cargo. It is estimated that about 7 million tonnes of cargo will move by coastal shipping by the end of the Seventh Plan, the increase in traffic being recorded by coal.[25]

Growth of coastal shipping on a sound financial basis calls for a clear and firm policy statement by Government on its future role in the country's transport system. It is necessary for Government to allot an assured quantity of traffic to coastal trade on a long term basis, taking into account the comparative advantage, so that it may programme for operating an adequate number of ships between designated ports on a regular basis.[26]

Under the present operating conditions costs of coastal movement are generally uneconomical and there is little hope for coastal shipping to survive on its own unless it receives financial support from Government. There is a distinct possibility for coastal shipping to become financially viable only when there is a potential for closed circuit project oriented movement of coastal traffic in large bulk. Such potential needs to be explored while locating new industries along the coast.

Shipping

Though sizeable, Indian shipping tonnage still does not compare favourably with that of several maritime countries Indian shipping accounts at present for only one per cent of the total world fleet. From a modest 0.39 MGRT in 1950–51, the country has acquired a diversified fleet of 6.32 MGRT, the maximum increase of 3.73 MGRT taking place in the seventies.[27]

The Shipping industry has been experiencing prolonged recession since the close of 1974 except for a brief revival during 1980–81. Conference operators are facing keen competition from Non-Conference operators lines in general cargo movements in almost all trades. Conscious of these factors, India is trying to keep pace with the changed situation in shipping.

Adverse Features in Regard to Indian Shipping

Indian shipping benefits from advantages like lower labour costs and a vast maritime boundary and strong state support. Nevertheless, it has been affected by several adverse features, including its own structural weakness. First, the fleet is over-aged, resulting in high operating costs. Second, India's geographical position is such that a number of foreign vessels are able to use Indian ports as wayside ports, when returning from Gulf or sailing towards the Far East. Their

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[25] *Seventh Five-Year Plan, op. cit.*, pp. 514–515.

[26] Government of India: *Report of the National Transport Policy Committee*, 1980, *op. cit.*, p. 8.

[27] *Seventh Five Year Plan, op. cit.*, p. 509.

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task is made easier in the absence of proper protectionist measures. Third, while the world is moving rapidly towards containerisation, the Indian container fleet is almost negligible. Fourth, Indian shipping suffers from inadequate infrastructure support like ship repair facilities, dry docking and cargo handling.

Policy in the Seventh Plan

The policy in the Seventh Plan is to rectify structural weaknesses of the shipping sector and build up further on its inherent strength. Addition to the fleet would be selective in order to achieve self-sufficiency in tankers and to gain 50 per cent of the dry bulk cargo, and 40 per cent of the liner trade, apart from meeting coastal shipping requirements in full. Improvement in productivity in the shipping sector could be brought about by revamping of communications, data processing and central systems and development of managerial skills. Development of adequate infrastructure at the ports is also important for better matching of the type and size of vessels, frequency of services and volume and type of cargo handled. Concessional foreign credit for the shipping industry is also to be considered and it may even be advisable to take ships on long term charters and treat them at par with Indian bulk vessels in all matters relating to Transchart operations. The industry would be permitted great flexibility in its commercial operations particularly with regard to buying and selling of ships as this is a profitable operation and can help generate resources for acquisition of tonnage.[28]

The ownership of the shipping fleet is well dispersed. There are around sixty-six shipping companies of which two are in the public sector and account for 55 per cent of the Indian merchant fleet and the rest are in the private sector. Twelve companies, including two public sector companies, make up about 90 per cent of the shipping tonnage.

Shipping Corporation of India Ltd.

The Shipping Corporation of India is operating services on all important sea trade routes of the world. Besides regular cargo liner service, it also operates passenger-cum-cargo services, overseas and coastal tanker services, dry bulk cargo services, overseas bulk carrier services and overseas tram services.

The recession in the international shipping industry is continuing. However, as compared to 1983–84, there was some improvement in the world seaborne trade and in tonne-mile movement in 1984–85 and 1985–86. Despite the unfavourable conditions in international shipping, there has been a significant improvement in the working results of the Corporation during 1984–85 and 1985–86. SCI has taken several steps to improve their performance. These included (a) revision of tariff on liner services wherever possible, (b) rationalisation of port of calls, (c) development of way port trade, (d) restructuring of container services, (e) use of modern fuel efficient engines in the new ships

[28] *Seventh Five-Year Plan, op. cit.*, pp. 511–512.

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being acquired, (f) monitoring the consumption of bunkers and taking corrective measures to optimise the same, (g) sale/scrap of old vessels which are uneconomical, (h) aggressive marketing efforts, etc.

SCI has taken measures to cope with the requirements of marketing and agency services at the Inland Container Depots (ICDs). With a view to providing smooth and efficient movement of containers and bringing about customer satisfaction in terms of services, agency arrangements of ICDs have been linked to the concerned gateway port.

SCI has an authorised capital of Rs. 100 crore and paid up capital of Rs. 70.19 crore. During the year 1985–86 (15 month period from April 1, 1985 to June 30, 1986), the Corporation earned a profit of Rs. 7.50 crore as against a profit of Rs. 2.27 crore during 1984–85. In 1986–87 (12 months from July 1, 1986 to June 30, 1987), the net profit after tax earned was Rs. 6.44 crore. In 1987–88 SCI expects to earn a net profit after tax of Rs. 29.66 crore.

The SCI continues to maintain close relationships with the partners of various bilateral shipping arrangements. Bilateral shipping services between India and USSR/Poland/GDR/Egypt have been functioning satisfactorily.

The Mogul Line Limited, another Public Sector Shipping Company, has been merged with the Shipping Corporation of India Limited w.e.f. June 30, 1986. The total fleet strength of the company (as on July 1988) is 125 vessels of Rs. 28.78 lakh GRT and 48 lakh DWT. In addition, 10 vessels of 5.06 lakh DWT are on order in various shipyards in India.[29]

Chartering Wing—Transchart

The Chartering Wing (Transchart) in the Ministry of Surface Transport is a centralised organisation responsible for arranging shipment of Government owned/controlled cargoes on account of all the Ministries/Departments of both the Central and the State Governments and also public sector projects/undertakings under them. While arranging shipments every effort is made to utilise Indian ships to the maximum extent possible. The object is to help develop Indian shipping industry and also to save the much needed foreign exchange for the country. The Wing also advises the indenting Departments/Projects on various shipping matters and post-shipment problems.

During the year 1987, the Chartering Wing (Transchart) arranged shipment of about 159 lakh tonnes bulk and liner governmental cargoes such as fertilisers, fertiliser raw materials, iron ore, coking coal, petroleum products, newsprint, asbestos, machinery and equipments, etc., out of which about 118 lakh tonnes representing about 74 per cent, was carried on Indian vessels. Finished fertilisers, fertiliser raw materials and coking coal constituted the bulk of dry cargoes for which shipping arrangements were made. The percentage utilisation of Indian vessels for the governmental cargoes handled through the Chartering Wing (Transchart) during the year was a new high. In addition to arranging

[29] Based on information received from the Ministry of Surface Transport.

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vessels for shipment of bulk and liner cargoes, the Chartering Wing also arranged charters of specialised vessels such as for Antarctica Expedition, heavy project equipments, etc.

The Chartering Wing (Transchart) was set up in 1960 and as the centralised body for arranging shipment of Government owned/controlled cargoes has now developed into one of the biggest chartering agencies in the world. The development of Indian tonnage received a big fillip with the setting up of Transchart and the cargo support that is provided to Indian shipping. Transchart has developed expertise in the chartering of all types of vessels including specialised vessels.[30]

Inland Water Transport

Inland Water Transport (IWT) is the cheapest mode for certain kinds of traffic, both over long and short hauls, provided the points of origin and destination are located in water front and no transhipment of goods is involved. It is also one of the most efficient modes of transport from the point of view of energy consumption. Besides, this mode has other inherent advantages as well. It can provide immediate access wherever navigable waters exist without requiring investment in line haul capacities as in other modes of transport. Inland Water Transport is a labour intensive mode and generates more employment per rupee of investment than any other mode and so particularly benefits weaker sections of the community.

The share of inland waterways in the country's transport system is one per cent, and the density is 0.44 sq km. The navigable inland waterways extend nearly to 14,500 km, comprising a variety of river systems, canals, backwaters, creeks and tidal inlets, out of which only 5,200 km of major rivers and 485 km of canals are suitable for operation of mechanised crafts. The present level of waterway traffic is negligible which reveals a gross underutilisation of this major transport asset.

Development of Inland Water Transport during Different Plan Periods

Development of inland water transport commenced only from the Second Five-Year Plan and upto the end of the Fifth Five-Year Plan, the total expenditure in this sector was of the order of Rs. 34 crore. It was only in the Sixth Plan that this sector was given priority and specific schemes of inter-State Water Transport were taken up. Declaration of certain waterways as national waterways, replacement of over-aged vessels, modernisation of dockyards were the highlights of the Sixth Plan. There was a scheme for grant of subsidy to inland water transport entrepreneurs for acquisition of mechanised vessels and modernisation of the existing crafts, including country boats, for which an outlay of Rs. 45 crore was provided in the Central and Centrally sponsored sector, and an outlay of Rs. 26.66 crore was provided in the State Sector. The actual

[30] Based on information received from the Ministry of Surface Transport.

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expenditure was Rs. 39.05 crore in the Central Sector. Though a high priority was accorded for replacement of over-aged vessels of CIWIC (Central Inland Water Transport Corporation), it had still fifty-seven over-aged vessels out of a total fleet of 136 vessels by the end of the Sixth Plan.

Seventh Plan Objectives

The broad objectives for the Seventh Plan are (i) Development of inland water transport in the regions where it enjoys natural advantage; (ii) Modernisation of vessels and country crafts to suit local conditions; and (iii) Improvement in productivity of assets.

A total outlay of Rs. 225.73 crore is provided of which Rs. 155 crore is in the Central Sector and Rs. 70.73 crore provided under the Plan of States and Union territories.[31]

National Waterways

The need for introduction of the concept of National Waterways in conformity with objectives of National Highways in India has been suggested by various State Governments. Owing to financial stringency and poor plan outlays, State Governments have not been able to take adequate measures for river and canal conservancy. Consequently, navigation has become hazardous and some waterways have fallen into disuse.

The issue of national waterways has been examined by various committees, the consensus being that important waterways be declared as National Waterways. For declaring a particular waterway as National Waterway, the following principles are taken into consideration:

(a) It should possess, capability of navigation by mechanically propelled vessels of reasonable size,
(b) It should have about 45 metre wide channel and minimum 1.5 metre depth,
(c) It should be continuous stretch of 50 km the only exception to be made to waterway length is for urban conglomerations and intraport traffic, and
(d) (i) It should pass through and serve the interests of more than one State, or
(ii) It should connect a vast and prosperous hinterland and major ports, or
(iii) It should pass through a strategic region where development of navigation is considered necessary to provide logistic support for national security, or
(iv) It should connect places not served by any other mode of transport.

[31] *Seventh Five-Year Plan, op. cit.*, pp. 517–519.

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Inland Waterways Authority of India

Several committees set up by the Government of India recommended declaration of important navigable waterways as National Waterways and acceleration of their development for promotion of inland water transport in view of its low cost and for securing certain other advantages such as energy efficiency, generation of employment among weaker sections of community and less pollution. The National Transportation Policy Committee also observed that the existing set up of Inland Water Transport Directorate in the Ministry of Shipping and Transport was not geared to undertake and discharge the responsibility for proper development of National Waterways as this was merely an advisory body without any powers to allocate funds for development schemes and their execution. To overcome this difficulty the Committee recommended setting up of an independent authority for the development, maintenance and regulation of National Waterways. The Government, accordingly, introduced a Bill 'The Inland Waterways Authority of India Bill, 1985' in Lok Sabha on August 28, 1985. The Bill was passed by Lok Sabha on November 25, 1985 and Rajya Sabha on December 18, 1985. It was assented to by the President on December 30, 1985. The Inland Waterways Authority of India was constituted on October 27, 1986. It has been entrusted with the responsibility of development, maintenance and regulation of National Waterways for shipping and navigation and also to organise studies and investigation on waterways under consideration for declaration as National Waterways.

Central Inland Water Transport Corporation

The Central Inland Water Transport Corporation was incorporated as a Company on February 22, 1967 with an authorised capital of Rs. 4 crore. It took over the assets and a few liabilities of the River Steam Navigation Company, PLC (a Sterling Company incorporated under UK Act) under the scheme of Arrangements approved by the High Court of Calcutta on May 3, 1967. The Company's authorised Capital was Rs. 58 crore with a paid up capital of Rs. 42.42 crore as on March 31, 1987.

The activities of the Company are divided into three major divisions. The River Services Division of the Company carries cargo on Inland Waters of the North-Eastern Region of the country through Bangladesh. The main Inland Water routes operated are (i) Calcutta-Guwahati-Calcutta, (ii) Calcutta-Karimganj-Calcutta, (iii) Calcutta-Haldia-Calcutta and (iv) Haldia-Farakka. Major bulk cargoes carried on North-Eastern Region are cement, foodgrains like rice and wheat, edible oil, jute, tea and bamboo. On Haldia-Calcutta-Farakka route major bulk cargoes carried are oil containers, jute, pulses, stonechips, fertilisers, etc. The Rajabagan Dockyard undertakes major repairs of Inland vessels, construction of new vessels, and general engineering. The Deep Sea Ship Repair Division with its units at Calcutta and Port Blair undertakes repairs of sea going vessels.

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The values of production of these three major divisions of the Company during the last 5 years were as shown in Table 15.6.

Table 15.6
Production of three major divisions during last 5 years[32]

(Rs. in lakhs)

S. No.	*Division*	*1982-83*	*1983-84*	*1984-85*	*1985-86*	*1986-87*
1.	River Services Division	200.97	281.24	448.00	500.79	580.98
2.	Rajabagan Dockyard	519.17	484.72	652.87	811.38	647.93
3.	Deep Sea Ship Repair Division	173.62	192.41	169.55	193.91	196.34
		893.76	958.37	1270.42	1506.08	1425.25

With a view to improving the working of the Company, the Dutt Committee and an Inter-Ministerial Study Team for an in-depth study of CIWTC were constituted by the Government of India during 1982–83. Based on the recommendations of the Dutt Committee, Division-wise Costs and Profit Centres have been set up with decentralisation of operational, financial and administrative powers.[33]

Farakka Barrage

The Farakka Barrage has the primary objective of preservation and maintenance of the Calcutta Port as well as the regime and the navigability of the Bhagirathi-Hooghly system. Phase I of the Project consisting of the Farakka Barrage, the Head Regulator, the Feeder Canal and the Jangipur Barrage have been mostly completed. The balance works under Phase II consisting of the lock gates at Farakka, additional gates and stop legs at the main barrage, closure of gaps in the left afflux bund and some new works taken up in the Sixth Plan will be continued in the Seventh Plan.

The latest cost of the project is Rs. 245.85 crore and the expenditure at the end of the Sixth Plan was Rs. 193.49 crore with a carryover of Rs. 52.36 crore into the Seventh Plan. The outlay for the Seventh Plan is Rs. 49.30 crore.

AIR TRANSPORT

In a country of the size of India where major industrial and commercial centres are far apart and transport services must contend with a variety of terrain and climatic conditions, air transport has a significant role to play. It offers savings

[32] Based on information received from the Ministry of Surface Transport.
[33] Ministry of Shipping and Transport: *Annual Report for 1984–85*, pp. 23–24.

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in time that cannot be matched by surface transport over long distances. Air transport has optimised technological, managerial and administrative skills in a resource scarce economy.

There are a number of agencies which are involved in providing Civil Aviation Services in the country. While Air-India, Indian Airlines and Vayudoot provide air services, International Airports Authority (IAAI) and National Airports Authority provide infrastructural facilities.

In the last few years, the airline industry has witnessed a global recession. Both the domestic and international carriers found it increasingly difficult to meet the high operational costs. Notwithstanding this situation, Air-India and Indian Airlines have been among the very few carriers in the world who had earned profits in the year 1986–87. They made net profits aggregating to Rs. 57.39 crore and Rs. 63.74 crore, respectively. During the financial year 1987–88, Indian Airlines profit was in the vicinity of Rs. 75 crore, the highest ever achieved by the Corporation.

Plan-wise Development of Civil Aviation

At the time of the drafting of the First Five-Year Plan, Civil Aviation was a new line of development. To ensure that the existing airports worked on an economic basis, integration of the existing airlines was decided upon and a State Corporation was set up for the purpose. The plan provided a sum of Rs. 9.5 crore for the purchase of 13 Aircrafts, three of which were to be of the type required for long distance international air services and for payment of compensation to the then existing air companies. During the period of this plan, progress on schemes relating to education and training had been relatively slow. Efficient air services demanded high standards of training and equipment. To look into this matter a Committee was appointed by the Government and in pursuance of the recommendations made by this Committee, it was decided to centralise training at Allahabad and to raise training standards for commercial pilots. This project was undertaken during the Second Five-Year Plan.

The Third Plan provided for Rs. 25.5 crore on Civil Aviation distributed among various categories as follows:

Work at Aerodromes	Rs. 1850 lakh
Aeronautical Telecommunication Equipment	Rs. 500 lakh
Air routes and aerodromes	Rs. 100 lakh
Training and Education Equipment	Rs. 84 lakh
Research & Development Equipment	Rs. 16 lakh
	Rs. 2550 lakh

In the Fourth Plan, aircrafts of much bigger size and with greater speed were expected to be introduced. This Plan envisaged improvements of runway and terminal and communication facilities at the four International Airports at

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Bombay, Calcutta, Delhi and Madras, to make them suitable for operation of heavier and larger capacity aircraft like Boeing 747 (Jumbo) Jets. The Plan also provided for the development of various airports for domestic air services.

The Fifth Plan had a provision of Rs. 65.15 crore which, *inter alia*, included outlays on aeronautical communication services and works at aerodromes. Under aeronautical communication services, provision had been made for augmentation of calibration facilities and for improving the aeronautical fixed and mobile telecommunication network in order to improve the safety of aircraft operation.

In the Sixth Plan, emphasis was placed on the provision of safety oriented equipment, so as to make air operations more safe and reliable. Under the programme of civil works at aerodromes, the policy of generally developing the existing airports rather than construction of new ones was to be continued, the main programme under this head being upgrading of existing airports so as to facilitate the safer operations of jet aircraft. In total, an outlay of Rs. 859.10 crore was provided for the Civil Aviation Sector. The expenditure, however, was Rs. 931.03 crore.

Owing to resources constraints, an amount of Rs. 730.21 crore has been provided in the Seventh Plan which would suffice to meet the expenditure on ongoing schemes and to start a few ones. While sanctioning programmes, priority would, however, be accorded to the development of support infrastructure over acquisition of assets. In the state sector, civil aviation activities include flying clubs and development of air strips, for which an amount of Rs. 27.63 crore has been provided.

Integration of various functional services to improve productivity and service efficiency, streamlining of facilitation procedures at airports, development of selected domestic airports to serve as satellites, relieving pressures of the existing international airports and increase in throughput with the aid of operational and tariff measures designed to even out traffic leaks to the extent possible, are some of the measures which are to be taken during the Seventh Plan to enhance the capacity of international airports.[34]

Directorate General of Civil Aviation

The Department is headed by the Director General of Civil Aviation with headquarters at New Delhi. The organisation of the Directorate General of Civil Aviation is responsible for the regulatory functions in the field of civil aviation for safe air travel.

National Airports Authority

The National Airports Authority (NAA) was set up by the Government on May 21, 1986 and has become operational on June 1, 1986. The Authority is responsible for providing infrastructure for civil transport operations in India.

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[34] *Seventh Five Year Plan*, op. cit., p. 529.

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Since its inception, three new aerodromes at Calicut, Shimla and Aggatti (Lakshadweep) have been constructed by the Authority. In addition, 13 aerodromes in various parts of the country were developed for Vayudoot operations. Construction of new terminal buildings at seven places, including the New International Complex at Trivandrum was also completed. Additions and alterations to terminal buildings at eight more airports were also undertaken during this period. Developments of runways and associated pavements in 14 aerodromes, and the development of the Goa and Hyderabad airports for limited international operations were also accomplished in this period. The international complex at Bangalore is expected to be ready by the end of 1988. Installation of several communication and navigational equipments has also been undertaken in several airports. Terminal buildings, control towers, runways, etc. at different places are at various stages of construction.

One of the major schemes that has been taken up by NAA is a plan for modernisation of the Air Traffic Control System at Bombay and Delhi Airports at an estimated cost of over Rs. 200 crore. A detailed Project Report has been submitted to the Government and is pending for the consideration and approval of the Public Investment Board. The Project envisages enhancement of the capacity of the ATC Systems at these two airports to handle peak movement of 35–40 flights per hour against the present 10– 15 flights per hour. The project, when implemented, would facilitate smooth and economic aircraft operations through these two busiest airports in India.[35]

International Airports Authority of India

International Airports Authority Act, 1971 vested IAAI with the management of the aerodromes at Bombay (Santacruz), Delhi (Palam), Calcutta (Dum Dum), and Madras (Meenambakkam). Since its inception, IAAI has experienced increase in traffic generated by fast and wide bodied aircrafts. During 1987–88, it had handled 8.1 million international passengers, 11.41 million domestic passengers, 0.26 million tonnes international cargo and 0.13 million tonnes domestic cargo. It is predicted that the growth rate upto the year 2000 would be as follows:

Annual Rates of Growth—1987–88 to 1999–2000

International passengers	6.7%
Domestic passengers	9.0%
International cargo	11.1%
Domestic cargo	9.6%

2. So far, IAAI has invested Rs. 316.78 crore during the period 1972–73 to 1987–88 on extension and expansion of existing terminal buildings and the construction of new terminal complexes with all modern facilities at

[35] Based on information received from the Ministry of Civil Aviation and Tourism.

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Delhi, Bombay and Madras, namely, the New International Terminal Complex at IGI Airport, New Delhi; the Phase-I and II of the New International Terminal Complex at Bombay and the New National Terminal at Madras airports. Work on the New International Terminal Complex (Phase-I) at Madras is already in progress and is slated for completion in March 1989. Likewise, work on the domestic terminal (Phase-I) at Bombay has already been taken up and is scheduled for completion in 1991. The other major new schemes for construction of new terminals at the four international airports include: International Terminal (Phase-I) at Calcutta, International Terminal (Phase-III) at Bombay, New Domestic Terminal at Delhi, Phase-II of National Terminal at Madras, Phase-II of International Terminal at Delhi, Domestic Terminal (Phase-I) at Calcutta, International Terminal (Phase-II) at Madras, Domestic Terminal (Phase-II) at Bombay, International Terminal (Phase-II) at Calcutta, Domestic Terminal (Phase-III), Bombay, Domestic Terminal (Phase-II), Delhi and Alternate Airport for Bombay.

3. Opportunities, therefore, exist to cope with increasing passenger and cargo traffic. Space constraints at four international airports do not permit growth in capability to handle expected increase in traffic by the turn of the century. It is, therefore, considered necessary that additional airports viz. Ahmedabad, Bangalore, Hyderabad, Varanasi, Trivandrum and Cochin may be handed over to IAAI so that these may be provided as alternatives to the four Metro Airports and the threat of international traffic being diverted to the neighbouring countries could be overcome.
4. Many technological changes, which are presently taking place in the civil aviation world are being brought about at IAAI airports for providing services/facilities conforming to the highest international standards, thereby ensuring maximum satisfaction to the various users in a cost effective manner. For this purpose, the following objectives have been evolved: Improvement of the existing facilities and augmentation of capacities to meet the future traffic needs; improvement in all areas of passenger facilitation; modernisation and augmentation of cargo handling system to meet future requirements; generation and mobilisation of capital to meet the investment costs on future infrastructural needs; improvement in security and safety environment at the airports; improvement in the standards of maintenance of infrastructure; improvement of management information system and application of computers to new spheres; and manpower development and training to upgrade skill levels and productivity.[16]

Indian Airlines

The Indian Airlines was set up under the Air Corporation Act, 1953 with an initial capital of Rs. 3.25 crore with its Corporate Headquarters at Delhi. It has

[16] *Ibid.*

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four Regional Offices which are located at Bombay, Calcutta, Delhi and Madras. Its functions are to provide air services for passengers, cargo and mail on the internal air network of the country including adjacent countries, i.e. Afghanistan, Bangladesh, Sri Lanka, Nepal, Pakistan, Thailand, and Singapore.

The years from 1983–84 set new marks in the financial achievements of the Corporation as would be evident from Table 15.7.

Table 15.7
New marks in the financial achievements between 1983–88
(Rs. in crores)

Year	*Profit before tax*	*Profit after tax*
1983–84	46.35	15.85
1984–85	53.34	52.84
1985–86	63.52	63.22
1986–87	63.74	38.74
1987–88 (Provisional)	75.60	30.10

The Operating Profit of Rs. 106.70 crore during 1987–88 exceeded Rs. 100 crore mark consecutively for the second time in the history of the Corporation. The summarised financial results for 1987–88 and comparative figures for 1986–87 are as shown in Table 15.8.

Table 15.8
Financial results for 1987–88 and figures for 1986–87
(Rs. in crores)

	1987–88	*1986–87*	*Percentage increase/ decrease over 1986–87*
Operating Revenue	917.68	820.91	11.8
Operating Expenses	810.98	719.75	12.7
Operating Profit	106.70	101.16	5.5
Non-Operating Revenue	7.81	7.79	0.3
Non-Operating Expenses	38.91	45.21	(13.9)
Profit before Tax	75.60	63.74	18.6
Provision for Tax	45.50	25.00	82.0
Profit after Tax	30.10	38.74	(22.3)
Capital	100.08	100.08	—
F. Exch. Earnings	205.98	204.33	0.8

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The fleet composition of Indian Airlines is as follows:

Airbus	11 (includes one on lease)
Boeing-737	27 (includes two on lease)
HS-748	06
F-27 (Fokker)	04 (includes two F-27 aircraft with Coast Guard)

Indian Airlines has become one of the leading domestic carriers, its rank among the IATA (International Air Transport Association) member airlines being third outside USA in terms of RPK (Revenue Passenger Kilometres) performed. Indian Airlines is poised for a phenomenal growth and modernisation in the years to come with a view to meeting the growing traffic demand and to further extend the jet era of the remotest corner of the country. It has entered into an agreement with M/s Airbus Industries for purchase of 19 A-320 airbus aircraft on March 15, 1986, at a total cost of Rs. 1238.37 crore, including a foreign exchange component of Rs. 1142.23 crore, for delivery by March 1990. In addition to this, Indian Airlines has placed an option for the purchase of 12 more such aircrafts.

There is need to improve further productivity of both internal and international services. In the case of Indian Airlines, present utilisation levels of Boeing 737 and airbus aircraft are the highest achieved so far. Similarly, the utilisation level of airbus aircraft of Air-India is lower than that of other international carriers. Measures to improve productivity would include, among other things, extension of operational hours and consequent rescheduling of services. It is also necessary for the airline to raise their load factor by deploying the fleet on high traffic density routes. It is necessary also to bring about better coordination and integration of operations of the two airlines so as to achieve better utilisation of the system capacity as a whole.[37]

Air-India

Air-India International which had been operating international services since 1948 was nationalised in 1953 along with its domestic counterpart and was allowed to retain its identity. The word 'International' was dropped in 1962.

In 1953, Air-India operated services only on two international routes i.e. London and Nairobi. Now its route network spans five continents covering 39 online stations. Its revenue in 1953 was a mere Rs. 2.39 crore. It has crossed to Rs. 1000-crore mark in 1987–88.

One of the more successful public enterprises in the country, Air-India has enjoyed unrivalled record of profitability not only among the public sector corporations in India but also among international airlines. Air-India has achieved a steady rate of growth since its inception. In the year 1987–88 when

[37] *Ibid.*

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its revenue crossed Rs. 1000 crore threshold for the first time in its history, it has maintained its rate of growth.

Air-India's capacity in terms of Available Tonne Kilometres went up by 13.6 per cent from 1919.5 million ATKMs in 1986–87 to 2180.2 million ATKMs in 1987–88. At the same time, capacity utilised went up by a higher margin of 14.9 per cent from 1206.3 million RTKMs in 1986–87 to 1386.1 million RTKMs in 1987–88.

The number of revenue passengers carried went up by 16.6 per cent from 1.83 million to 2.13 million in 1987–88. During the same period the passenger load factor went up from 68.8 per cent to 69.3 per cent.

The capital from the Government as on date is Rs. 148.73 crore, divided equally between Equity and Loan Capital. Air-India has not received any amount from the Government towards capital since 1983–84.

The foreign exchange earned/saved during the year 1987–88 was Rs. 160.49 crore.

Fleet

The current fleet of Air-India is as follows:

Boeing 747	10
Boeing 747-300 Combi	2
Airbus A 310-300	6
Airbus A 300-B4	3
	21

Apart from this, Air-India has on lease one IL-62 passenger aircraft from Aeroflot for operation of services to Moscow. In addition, Air-India also leases freighter aircraft—one Boeing 747, one DC8-63, and two IL-76 aircraft—to operate freighter service to USA, Europe and the Far East.

Prospects for 1988–89

The challenges facing Air-India at present are clearly formidable and the main thrust is to return to profitability. With this object in view, several steps to improve the product and the image have been taken. The service on ground and in the air is being improved. Some of the more significant steps in this direction are:

1. Improvement of the product with faster and more non-stop point-to-point services;
2. Introduction of point-to-point operations between Bombay/Delhi and Frankfurt/Paris/Tokyo during Winter 88 after the induction of two B 747 combi aircraft. Frankfurt will become the new hub in Europe;

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3. Imparting training to staff and officers at all levels to enhance customer awareness and improve service standards;
4. Enhancement of computerisation to provide for link-up of agents with Air-India's reservation systems and automated airport check-in, introduction of automated baggage labelling, boarding pass printers to speed up passenger handling and improve on time departures of flights;
5. Creation of a new corporate image, using services of Landor Associates, a specialised agency of international standing in this field;
6. Improvement in yields by promoting more first class and business traffic; and
7. New agreements with the unions to achieve[38] higher productivity throughout the system.

Vayudoot

Vayudoot was initially incorporated in January 1981 as a private company to connect inaccessible areas of the north-eastern region and stations not served by the Indian Airlines which are important as centres of trade and commerce. On February 17, 1983 it was converted into a public limited company.

The company was incorporated with an authorised capital of Rs. 25 crore with an initial paid up capital of Rs. 1 crore. The present total subscribed capital of the company is Rs. 18.2 crore contributed equally by Air-India and Indian Airlines.

The overall load factor during the year 1986–87 was 64.8 per cent and in 1987–88 it was 61.8 per cent. The total number of passengers increased from 3.25 lakh in 1986–87 to 4.49 lakh in 1987–88 marking a 38 per cent growth.

The revenue which was only Rs. 17.75 lakh in 1981–82 has increased to Rs. 1771.01 lakh (estimated) in 1987–88. The revenue growth in 1987–88 was 18 per cent over 1986–87. Though there was a net profit of Rs. 6.00 lakh (estimated) in 1986–87, the company had a net loss of Rs. 762.06 lakh (estimated) in 1987–88 owing to escalation of Deutche mark, *vis-a-vis* Indian rupee, fuel price hike, change over from Central D.A. to Industrial D.A. pattern and increase in cost of operation of Dornier.

The number of stations being operated by Vayudoot has increased from 8 to 96 in the last seven years. Vayudoot operates to 96 stations with a fleet of 10 Dorniers, 5 Avros and 4 Fokkers. Four regional bases have been set up at Delhi, Bombay, Calcutta and Hyderabad supplemented by 3 sub-bases at Bhopal, Madras and Guwahati.

To facilitate the public, Vayudoot offers schemes like package tours, rent-a-plane, own-a-plane, Himalayan Air Trek and ultra fast courier service.

At the moment Vayudoot is undertaking economic evaluation of 50 seaters to replace its ageing fleet of Avros and Fokkers and also to augment its resources in upkeep of traffic. New Generation 50 seater aircrafts as ATP, Fokker-50, Dash-8/300 and ATR-42 are under evaluation.[39]

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[38] *Ibid.*
[39] *Ibid.*

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Pawan Hans Limited

Pawan Hans Limited was incorporated in October 1985 as a Government of India enterprise with the objective of providing helicopter support services to the very important oil sector—mainly to the ONGC/rigs offshore. These operations resulted in saving foreign exchange and security of rigs as they are considered to be sensitive areas.

Pawan Hans also fulfilled the need of helicopters service to connect inaccessible regions of the mountains of J&K, North-Eastern states as well as inter-island transportation in both the Andaman and Lakshadweep groups of islands.

Pawan Hans commenced its operations in October 1986. The fleet today comprises of twenty 17-seater Westland-30 helicopters and twenty 11-seater Dauphin SA-365N helicopters. Apart from Andaman and Lakshadweep islands, other State Governments like J&K, Nagaland, Sikkim and Meghalaya are also using Pawan Hans helicopters on long-term lease basis.

Coal India Ltd. is using PHL helicopters for casualty evacuation and emergencies at coal mines. Gas Authority of India Limited has engaged a helicopter for HBJ pipeline work. Pawan Hans also caters to VIP movement in the country and short-term charters from Delhi and Bombay for public and private sector companies and tourism promotion.

Apart from lease and charters, Pawan Hans is running one regular service between Jammu and Vaishno Devi making upto 8 runs each day. There are plans to start inter-city helicopter services.

The company was incorporated with an authorised capital of Rs. 50 crore out of which 51 per cent share is to be contributed by ONGC and 49 per cent by the Government of India. The authorised capital is likely to be increased to Rs. 300 crore on the basis of Government decision on the pattern of financing and the existing project cost. It is estimated that Pawan Hans has sustained a net loss of Rs. 7.41 crore during the year 1987–88, mainly on account of high depreciation cost and obsolescence reserve on new equipment.

The Corporate Office of Pawan Hans is located at Delhi with two regional offices at Bombay and Delhi respectively. Pawan Hans is operating from 13 bases as on August 1988. Total flying of 32,000 hours has been logged by the helicopters of Pawan Hans.[40]

Bureau of Civil Aviation Security

The Bureau of Civil Aviation Security is responsible for formulating national civil aviation security programme and ensuring its application to airports from where scheduled civil flights operate. The Department is headed by an officer of the rank of Additional Secretary and designated as the Commissioner of Security (Civil Aviation) with its headquarters at New Delhi. Its regional offices at Delhi, Bombay, Calcutta and Madras are headed by an officer of the rank of Deputy Commissioner of Security (Civil Aviation). As the threat to security of

[40] *Ibid.*

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civil aviation operations continues unabated, suitable counter-measures are introduced and updated from time to time.

PIPELINES AND ROPEWAYS

Pipelines

Pipelines are the most convenient and suitable mode of transport for the movement of petroleum products and gases in bulk over long distances. In recent years, other commodities like coal, which can be converted into slurry, are also being carried by the pipelines. With the steady increase in the demand of petroleum products and natural gas and the feasibility of converting solids into slurry form, the pipelines have become a significant alternative mode of transport and can supplement surface modes of transport working under capacity constraints.

In India, pipelines, both on and offshore, have been primarily used for transportation of crude oil, natural gas and petroleum products. At the beginning of the Sixth Plan, the pipeline network comprised 5,035 km. This length increased by 450 km of product, 856 km of crude and 169 km of gas pipelines during the Sixth Plan period. Pipeline transportation is characterised by comparatively low operating and maintenance costs, ability to traverse difficult terrain and low energy consumption.

In the Seventh Plan, experimental pipeline transportation of coal from pithead to a thermal power station will be taken up to establish the economic and operational feasibility of moving coal in slurry form. In respect of oil and gas pipelines, work on ongoing projects will be continued.

Ropeways

More than 16 per cent of the country's area is hilly. High ranges and rapid streams, the latter with frequent changes in their courses, are formidable barriers to development of communications in hilly areas. Long, circuitous routes have to be carved out to avoid heights or cross streams over bridges sited at suitable places. In the interior regions even bridlepaths are rare and all commodities for domestic or other requirements have to be carried in small loads by people. Due to complex geological structure, an efficient transport service in hilly terrain is essential for accelerating development. In this context, construction of ropeways, particularly in steep, rocky and rugged areas, can contribute significantly for the development of the area.

The Study Team of the Joint Technical Group of the Planning Commission in its report (September 1967) on "Eastern Region Transport Survey" highlighted the need for ropeway system for transporting bulk commodities like sand and coal over distances from one fixed point to another in difficult terrain. Reviewing ropeway system in the region, the study indicated that in 1956–66 there were approximately 145 km of ropeways with an installed capacity of

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2,904 tonnes per hour. These were located in areas of coalfield regions of West Bengal and Bihar. On the future scope for this mode of transport, the survey observed that it is an ideal means of transporting bulk materials under three conditions. First, the commodity to be transported must be such as can be expeditiously fed into small ropeway buckets. Secondly, the haul should be short not exceeding 50 km. Thirdly, other modes of transport are either inadvisable or uneconomical. It was also stated that due to operational difficulties for other modes, ropeway transport will grow gradually in the eastern region, particularly in Jharia and Raniganj coalfields, where surface transport is becoming congested, in iron ore mining areas of Bihar and Orissa, where roads are inadequate and railway connections uneconomical, and in hilly areas which need to be urgently exploited for their mineral wealth or forest produce.

While ropeways has a distinct advantage and its advantages can be pronouncedly felt in hilly areas, it can be functionally useful in selected plain areas as well. For instance this mode of transport can be gainfully utilised over short distances or small stretches, where close circuit movement of bulk materials like cement, coal, clay, limestone and clinkers is hazardous. Such aerial ropeways can provide cheap, convenient and economical means of transport and their operations in such areas will result in easing and reducing the pressure on rail and road transport systems.

In view of acute oil shortage this mode of transport, can prove more economical than road transport, particularly in hilly terrain. It has significant potential for meeting transportation requirements, specifically in selected hilly tracks where roads cannot be constructed conveniently, speedily and at a reasonable cost.

STEPS TAKEN TOWARDS FRAMING A NATIONAL TRANSPORT POLICY

It is a recognised fact that all the means of transport available in India at present are inadequate to meet the rapidly increasing requirements of the country due to the rising tempo of agricultural and industrial production during the Five-Year Plans. Roads, inland waterways, coastal shipping, airways and railways have therefore to be developed simultaneously as complementary means of communication in the country.

The need for a transport policy in the country was emphasised as early as in 1950 by the Motor Vehicles Taxation Enquiry Committee which stressed the necessity for coordinating development of all means of transport. In 1951 the Transport Advisory Council adopted the following principles governing inland transport:

(a) Fair and impartial regulation of all modes of transport so administered as to recognise and preserve the inherent advantages of each.
(b) Promotion of safe, adequate, economical and efficient services and the fostering of sound economic conditions in transport among the several carriers.

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(c) Encouragement of the establishment and maintenance of reasonable charges for transport services without unjust discrimination, undue preferences or advantages or unfair or destructive competitive practices, and

(d) Development, coordination and preservation of a nationwide transport system by water, road and rail, as well as other means, adequate to meet the needs of India.[41]

The Study Group (Planning) also emphasised the necessity for a national transportation policy which would give recognition to the part played by each of the different forms of transport. The question of framing such a policy was placed before the first meeting of Road and Inland Water Transport Advisory Committee held on November 14 and 15, 1958. The Committee recommended that a Small Special Committee, consisting of experts from the transport and economic fields and including a representative of the Ministry of Railways, should be appointed to consider all aspects of transportation in the country and draw up the broad outlines of a national policy covering all modes of transport. In pursuance of this decision, the Committee on Transport Policy and Coordination was set up in 1959.

The Committee, also known as Neogy Committee, was asked to recommend a long-term transport policy for the country having regard to the various economic and other relevant measures to define the role of various means of transport in the next five to ten years and to suggest suitable mechanism for the coordination of the various means of transport. This Committee submitted its final report in January 1966.

The Inland Water Transport Committee, which submitted its report in October 1970, also emphasised the need for enunciating a national transport policy which would define the role of each mode of transport and lay down clear principles and procedures for their coordination and integration where feasible or necessary. Declaration of national transport policy would create a new impetus for development of a coordinated and integrated transportation system, which, in turn, will make its contribution for the rapid development of the economy. Various Committees, appointed from time to time, were of the view that Government should immediately formulate a national transportation policy clearly laying down the role of various modes of transport and short-term and long-term objectives and programmes for their development.

The search was continued with the formation of Pande Committee in 1978 to propose a comprehensive national transport policy for the country for the next decade or so keeping in view the objectives and priorities set out in the Five-Year Plans. It was required to recommend an inter-modal mix, of different systems and also suggest appropriate technical choices within each system keeping in view the need to generate maximum employment potential and suggest organisational, administrative, fiscal, and legal measures required for

[41] See *75th Report of the Estimates Committee 1974–75*, (5th Lok Sabha) on the Ministry of Shipping and Transport—Transport Coordination, para 4.5.

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planning, implementing, monitoring and evaluating programmes formulated for giving effect to the relevant components of the national transport policy by the Central and State governments and major transport agencies at both the national, State and local levels.

The purpose of the two committees, the Neogy Committee appointed in 1959 and the Pande Committee appointed in 1978, was the same with a slight difference in emphasis on different aspects of transport problem and a change in phrasing. While the 1959 committee was to define the role of the various means of transport, the 1978 committee was required to recommend "an optimal inter-modal mix of different systems." The names of the two committees "Committee on Transport Policy and Coordination" and "National Transport Policy Committee" also spelt out the identity of purpose.[42]

The six-member National Transport Policy Committee headed by Shri B.D. Pande submitted its report to the Prime Minister in March 1980. It took the Committee just less than two years to formulate an integrated transport policy. The Committee in its report has recommended the coordination of all modes of transport and felt that there should be an over-riding accent on energy conservation in a National Transport Policy. The Committee has also recommended an inter-modal mix of rail, road and coastal shipping and a massive electrification programme for the railways so as to save on scarce diesel. The proposed policy recognises the role of all modes of transport for economic development. The requirements of transport are such that all modes together may not meet them. Hence, emphasis has been laid on joint effort and inter-modal mix.

Optimal Inter-modal Mix

The central issue of transport policy is to allocate rationally and at minimum resource cost the total available resources for investment between various modes of transport to match with growing requirements of the economy. In the central issue, the core problem is to measure resource costs of each agency of transport on a comparable basis. But resource costs cannot be measured in isolation from the Government's socio-economic priority objectives or financial constraints. In fact, these objectives and constraints determine what premia should be attached for shadow pricing of scarce resources like energy and other inputs consumed by the transport facility. The sole criterion for determining an optimal inter-modal mix, however, is not merely minimisation of resource costs. There may be other important policy objectives which through its transport policy the Government may want to pursue at a given point of time. Moreover, as transport is one of the principal energy intensities, one of our basic objectives would be to promote, in the light of operational capabilities those modes which have relatively high energy efficiency per unit of transport output. Two other considerations relevant for determining an optimal inter-modal mix are the emphasis on building rural roads to provide the much-

[42] G. S. Khosla, "Transport Policy: Identifying the Missing Link", *The Statesman*, Delhi, September 6, 1980.

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needed accessibility for villages hitherto unconnected to a road system, and dispersal of industrial locations to new centres of activity in rural areas to optimise land-use and relieve congestion in large urban centres. It is possible for the Government for valid reasons to take into account at any time a non-efficient (socio-political) objective as well in determining an appropriate inter-modal mix for the country. Nevertheless, it is a considered view that, while allocating investment outlay between transport modes, efficiency considerations should prevail, that is, the policy should be to create a transport system which provides service at the lowest resources cost to society.[43]

The Committee has covered general policy issues like objectives of transport policy, energy optimisation and resource cost, taxation and pricing of transport services, transport planning, coordination and development. It deals with special problems of different modes, namely railways, roads and road transport, urban transport, air transport, coastal shipping, inland water transport, ports and harbours and ropeways and pipelines. The Committee had detailed discussions with State Governments, concerned Central Ministries, Railway Board, Planning Commission, Chambers of Commerce, operators associations, users representatives, experts of transport economics and engineering, planners, university professors and port trusts. The recommendations make up for a comprehensive transport policy for the next decade keeping in view the objectives and priorities set out in the Five-Year Plans. As was required, these suggest appropriate technical choices within each system to generate maximum employment potential and also organisational, administrative, fiscal and legal measures required for planning, implementing, monitoring and evaluating programmes for giving effect to relevant components of policy by the Central and State Governments and major transport agencies at National, State and local levels.

As there is a close interaction between transport and spatial distribution of economic activities transport development can be an important instrument for dispersal of industrial activity. It has, however, a limited role in dispersal of population from urban conglomerations. To achieve this objective creation of employment opportunities in rural areas and small towns is necessary, which in turn will also help reduce pressure on the national transport system.

The report of the Pande Committee has been approved by the Government and it has accepted the recommendations made by the Committee in full. Government favours a step by step implementation of the report because of its comprehensive and futuristic perspective. As the report has drawn a perspective of the transport problems the country would be facing in the next ten years, its total implementation cannot be taken up immediately. This report came at a time when the Planning Commission was busy finalising the Sixth Five-Year Plan, so some of its relevant recommendations had been incorporated in the Sixth Plan itself. Some more of them have been included in the Seventh Five-Year Plan. For example the Seventh Plan contains an integrated scheme for

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43 Report of the National Transport Policy Committee 1980, *op. cit.*, p. 26.

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development of all modes of transport, provision of energy based transport, building of more roads in the rural sector and electrifying all suburban trains. A start has been made through computer based operation of goods and passenger traffic and automation of wagon loading. The Government has in principle agreed to phase out freight equalisation for steel and cement, but its complete phasing out is posing problems as it entails providing compensation to State governments.

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APPENDIX 15.1

Growth of Transport System

Item	*Unit*	*1950—51*	*1960–61*	*1970–71*	*1979–80*	*1984–85*	*1985–86*	*1986–87*	*Growth rate in percentage*
1	2	3	4	5	6	7	8	9	10
1 RAILWAYS									
1.1 Route length	km	53596	56247	59790	60933	61850	61836	61813	0.40
1.2 Electrified route length	km	388	748	3706	4820	6325	6517	7275	8.48
1.3 Tonnes originating	Million	93.0	156.2	196.5	217.8	264.8	286.4	307.3	3.38
1.4 Net tonne (kms)	Billion	44.12	87.68	127.36	156.00	182.16	205.9	223.1	4.60
1.5 Passengers originating	Million	1284	1594	2431	3505	3333	3433	3594	2.90
1.6 Passenger (kms)	Billion	66.5	77.7	118.1	198.6	226.6	240.6	256.5	3.82
2 ROADS									
2.1 Total length	000 km	397.62	705.0	917.0	1534.3	N.A.	N.A.	N.A.	N.A.
2.2 Surfaced length	000 km	156.11	234.4	397.9	658.1	"	"	"	"
2.3 Unsurfaced length	000 km	241.51	470.6	520.0	876.2	"	"	"	"
2.4 National highways	km	19700	23769	24000	29000	"	"	"	"
2.5 Village connected with all weather roads	Nos.	N.A.	N.A.	N.A.	167376	"	"	"	"
2.6 Percentage of villages connected with all weather roads	Per cent	N.A.	N.A.	N.A.	28	"	"	"	"

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Appendix 15.1 *Contd.*

1	2	3	4	5	6	7	8	9	10
3	ROAD TRANSPORT								
3.1	Number of trucks	No.	81888	167649	342577	472093	763000	876000	960000	6.78
3.2	Number of passenger buses	No.	34411	56792	93907	140346	206263	225000	242000	5.41
4	MAJOR PORTS									
4.1	Traffic handled	Million tonne	19.2	39.9	55.7	78.5	100.7	N.A	N.A.	5.17
4.2	Number of major ports	No.	5	9	10	10	10*			
5	SHIPPING									
5.1	*Overseas Shipping*									
5.1.1	Shipping tonnage	Million GRT	0.17	0.54	2.20	5.30	5.97	"	"	11.03
5.1.2	Traffic carried	Million tonnes	1.2	2.2	10.4	20.0	31.00	"	"	10.04
5.2	*Coastal Shipping*									
5.2.1	Traffic tonnage	Million GRT	0.22	0.31	0.23	0.25	0.36	"	"	1.37
5.2.2	Traffic carried	Million tonnes	3.6	5.4	4.3	4.4	5.5	"	"	1.25
6	INLAND WATER TRANSPORT									
6.1	Length of navigable waterways	km				14544	14544	"	"	"
6.2	Length of waterways suitable for mechanised craft	km				5685	5685	"	"	"

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Appendix 15.1 *Contd.*

1	2	3	4	5	6	7	8	9	10
7	CIVIL AVIATION								
7.1	*Indian Airlines*								
7.1.1	Capacity	Million tonne km	..	113	208	586	960	"	"	9.32†²
7.1.2	Traffic									
	(i) Revenue tonne kms	Million	..	83	161	399	664	"	"	9.05†²
	(ii) Revenue passenger kms	Million	..	614	1543	4199	6676	"	"	10.45†²
7.2	*Air India*									
7.2.1	Capacity	Million tonne km	..	161	516	1388	2007	"	"	11.08†²
7.2.2	Traffic									
	(i) Revenue tonne kms	Million	..	76	275	819	1257	"	"	12.40†²
	(ii) Revenue passenger kms	Million	..	583	1994	5731	8623	"	"	11.88†²
8	PIPELINES									
8.1	Length	km	..	..	..	5035	6535	"	"	5.35**

N.A. Not Available.
* This does not include Nheva Sheva Port which is under construction.
†² From 1960–61 to 1984–85.
** From 1979–80 to 1984–85
SOURCE: Govt. of India Planning Commission, *Seventh Five-Year Plan*, 1985–90 *op. cit.* p. 45.

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APPENDIX 15.2

Freight Traffic Railways

Year	Originating tonnes (Millions)			Tonne kms (Millions)			Avg. lead (kms)		NTKMS Wagon B.G.	Per day M.G.
	Revenue	Non-Rev.	Total	Revenue	Non-Rev.	Total	Revenue	Total		
1950–51	73.2	19.8	93.0	37565	6552	44117	513	470	710	304
1960–61	119.8	36.4	156.2	72333	15347	87680	603	561	998	405
1970–71	167.9	28.6	196.5	110696	16662	127358	659	648	908	524
1979–80	193.1	24.7	217.8	144659	11436	155995	740	716	972	534
1981–85	236.4	24.3	264.7	172632	9629	182161	730	688	1150	565
1985–86	238.6	27.8	266.4	196601	9303	205904	760	719	1296	677
1986–87	277.9	29.6	307.3	214096	8001	223097	771	726	1420	703

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APPENDIX 15.3

Composition of Originating Freight Traffic

(Million tonnes)

Commodities	*1960–61*		*1970–71*		*1979–80*		*1984–85*		*1985–86*		*1986–87*	
	Tonnage	*Per-centage share*	*Tonnage*	*Per-centage share*	*Tonnage*	*Per-centage share*	*Tonnage*	*Per-centage share*	*Tonnage*	*Per-centage share*	*Tonnage*	*Per-centage share*
1	2	3	4	5	6	7	8	9	10	11	12	13
Integrated Steel Plans												
(i) Finished products from steel plants	3.8	2.4	6.3	3.2	7.2	3.3	8.2	3.1	8.9	3.1	9.5	3.1
(ii) Raw material inputs	10.5	6.7	16.1	8.2	20.7	9.5	22.6	8.6	23.0	8.0	24.0	7.8
Total	14.3	9.1	22.4	11.4	27.9	12.8	30.3	11.7	31.9	11.1	33.5	10.9
2. Coal (including coal for railways)	50.4	32.3	64.2	32.7	75.8	34.9	101.9	38.5	111.7	39.0	118.1	38.4
3. Iron ore for export	2.6	1.7	9.8	5.0	9.3	4.3	11.1	4.2	12.5	4.4	14.2	4.6
4. Cement	6.5	4.2	11.0	5.6	10.0	4.6	16.9	6.4	18.0	6.3	19.8	6.5
5. Foograins	12.7	8.1	15.1	7.7	18.4	8.4	20.7	7.8	24.1	8.4	29.0	9.4
6. Fertilisers	1.4	0.9	4.7	2.4	8.2	3.8	12.2	4.6	13.6	4.8	14.5	4.7
7. POL Products	4.7	3.0	8.9	4.5	14.3	6.6	18.2	6.9	18.6	6.5	19.9	6.5
8. Other goods	46.6	29.8	48.2	24.4	43.0	19.3	34.9	13.2	38.2	13.3	37.4	12.2
9. Railway materials	17.0	10.9	12.2	6.3	10.9	4.8	17.7	6.7	17.8	6.2	20.9	6.8
Grand Total	156.2	100.0	196.5	100.0	217.8	100.0	264.8	100.0	286.4	100.0	307.3	100.0

SOURCE: *Ibid*, p. 472.

APPENDIX 15.4

Growth of Passenger Traffic

Year	*Originating Passengers (Millions)*			*Passenger Kilometres (Millions)*		
	Suburban	*Non-Suburban*	*Total*	*Suburban*	*Non-Suburban*	*Total*
1950–51	412	872	1284	6.5	60.0	66.5
1960–61	680	914	1594	11.8	65.9	77.7
1970–71	1227	1204	2431	23.0	95.1	118.1
1979–80	1903	1602	3505	38.7	159.9	198.6
1984–85	1884	1449	3333	44.3	182.3	226.6
1985–86	1884	1548	3433	45.4	195.2	240.6
1986–87	2017	1577	3594	48.5	208.0	256.5

SOURCE: *Ibid.*

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APPENDIX 15.5

Ownership Pattern of Buses and Trucks by Private & Public Sectors

(Figures in Nos./percentage)

Year	*Total No. of Buses*	*Percentage ownership (Buses)*		*Total No. of Trucks*	*Percentage ownership (Trucks)*	
		Public	*Private*		*Public*	*Private*
1960–61	56792	31.6	68.4	167649	0.7	99.3
1965–66	73175	36.2	63.8	258977	0.7	99.3
1970–71	93907	39.5	60.5	342577	0.9	99.1
1975–76	114934	49.0	51.0	350393	0.6	99.4
1980–81	153757	45.2	54.8	526608	0.5	99.5
1983–84	191768	40.0	60.0	705000	0.3	99.7
1984–85	206268	38.4	61.6	763000	0.25	99.75
1985–86	225000	37.7	62.3	876000	...	...
1986–87*	242000	36.7	63.3	960000	...	...

SOURCE: *Ibid.*, p. 495 and information received from the Ministry of Surface Transport.

* Estimated

... Not available.

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APPENDIX 15.6

Port Capacities and Traffic at Major Ports

Port	*As on 31.3.1985*		*As on 31.3.1990*	
	Traffic	*Capacity*	*Traffic*	*Capacity*
Calcutta/Haldia	10.18	14.36	15.95	20.11
Paradip	2.14	4.85	4.83	6.05
Vizag	12.87	12.70	17.76	16.70
Madras	15.00	16.41	16.81	21.37
Tuticorin	3.78	5.45	7.26	6.65
Cochin	3.92	7.11	7.80	7.71
N. Mangalore	3.38	9.30	3.74	9.55
Mormugao	14.51	16.10	15.17	16.10
Bombay	25.20	26.25	28.60	28.11
Kandla	15.75	20.20	23.72	23.00
Nheva Sheva	—	—	5.25	5.90
Total:	106.73	132.73	146.87	161.45

SOURCE: *Seventh Five-Year Plan*, *op. cit.*, p.502.

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